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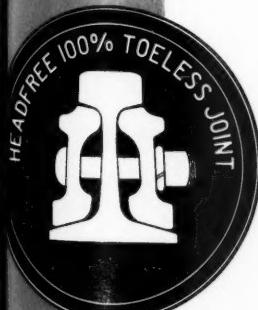
- More accurate initial fit at center.
- Greater depth of material at point of maximum wear.
- Less wear as Joint remains tighter.

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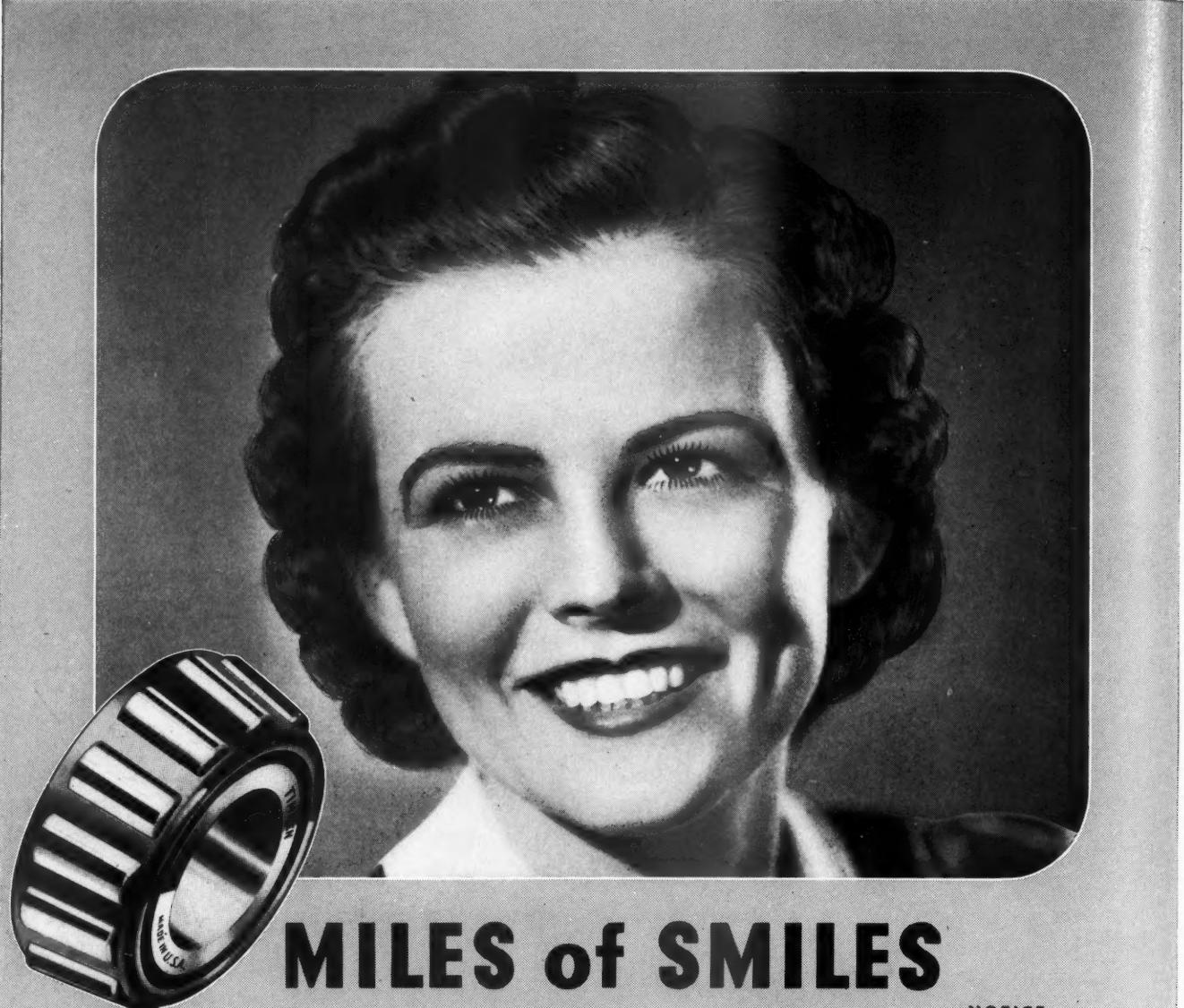
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A Neglected But Important Clause in the Transport Bill

One provision of the Transportation Bill (S. 2009), now being discussed by conferees of the House and the Senate, which has had slight attention in proportion to its importance, is that calling for the naming by the President of an investigating and research committee to report upon the comparative economy of the various forms of transportation, and the extent to which each is being subsidized out of public funds. This clause appeared only in the Senate bill, and not in the measure which passed the House. Consequently, there is no assurance that it will be included in the final bill recommended by the conferees. Assuming, however, that the provision may be a part of the forthcoming (we hope) Transportation Act of 1940, it is desirable that its potentialities be fully appreciated—because, unless they are, they are not likely to be realized.

The Biggest Investor in Transportation Ought to Decide What He Wants to Achieve

The importance of this provision for an investigation and research committee arises from the fact that, aside from the new declaration of policy, it is the only provision in the entire transportation bill which acknowledges the government's responsibility for the orderly and economic development of transportation. The government is now by far the largest investor of new capital in transportation plant, having put over 19 billion dollars of capital into such projects between 1920 and 1937, according to a recent statement by Dr. C. S. Morgan of the Interstate Commerce Commission. This new investment has transformed and is continuing to transform the industry. There are at least five federal agencies which perform important functions in the development of transportation—the Public Roads Administration, the Army Engineers, the Civil Aeronautics Authority, the Interstate Commerce Commission and the Maritime Commission. Each of these agencies performs its functions, pretty much oblivious to the activities of the other four. Two of these agencies in particular (the Public Roads Administration and the Army Engineers) are responsible for the investment each year of hundreds of millions of dollars of public funds in the construction of new (and largely duplica-

tive) transportation facilities. Obviously there cannot be any order in an industry in which such an enormous new capital investment is occurring, with responsibility divided among so many agencies and without any consistent objective or policy to guide them. Equally indisputable is the fact that very little new private capital is likely to be invested in transportation until such time as the government's policy is clarified. Just how much farther does the government propose to go in competing with private capital invested in transportation? Until private investors have an answer to that question, how can they expect to invest their funds with any assurance of safety?

There exists at the present time no comprehensive or consistent government policy toward transportation—and from that omission spring most, if not all, the difficulties which afflict the transportation industry. For example, the Interstate Commerce Act forbids any extension of railroad facilities unless a showing can be made of "public convenience and necessity" to be served by such investment. And in such showing the proponent must demonstrate that the territory to be served is not already adequately provided with transportation facilities and, furthermore, that the capital to be invested will have a fair chance of earning a reasonable return for its owners.

Government "Planning" for Private Investors, but Not for Public Expenditures

By contrast with this extreme caution on the government's part to prevent the duplicative and wasteful expenditure of *private capital* in the extension of railroad facilities, there exists no specific limitation upon the highway and waterway building authorities to require of them a similar caution in the investment of *public money* in transportation plant. Thus, as far as definite expression in the law is concerned, the federal government places its highway building agency under no obligation whatsoever to consider the existence and adequacy of railroad or waterway facilities in an area where it may be contemplating the provision of heavy-duty highway facilities. The Army Engineers, in analyzing a waterway project, do not consider the

adequacy of railway or highway facilities, but solely whether the waterway is likely to "save money" to shippers, compared with existing *rates* by transportation agencies already available.

In what degree is it proper for the government to spend taxpayers' money in order to "save money" for shippers? Congress has set no limit—and, until it does, how can private investors in transportation calculate with any assurance on the possibility of profit? Even if the railroads were now earning a reasonable return, their credit and their willingness to make large new investments would still be depressed by this Sword of Damocles.

There is, of course, no calculation whatever of the prospective return on the investment in public outlays on transportation plant, comparable to the showing of probable profitability which must be made before an investment can be made in the extension of railway facilities.

The above observations are simple facts not subject to controversy. Controversy arises only when the suggestion is made that these conditions need to be changed. Defenders of liberal expenditures on highways and waterways contend that these avenues of transportation are "historically free"; that the government has never in the past looked upon such investments as "publicly-owned utilities" from which a commercial profit should be earned; and that there is no reason why it should now depart from its "historic" policy. While this argument from "history" is open to serious question*—nevertheless, even if it be conceded, it has no significance. There is a "historic" precedent for hanging as the punishment for petty larceny, but that precedent accords no merit in modern penology to such an expedient.

What Is the "Transportation Problem"?

The "transportation problem" may be variously defined, but certainly it does not include the preservation of "historic" customs and attitudes of no practical value in providing economical transportation for the present generation. On the contrary, the "transportation problem," considered in isolation, consists simply of finding and applying policies and practices which will provide the maximum of transportation service at the minimum expenditure of labor and capital. Considered in connection with the general prosperity of the country under a regime of private enterprise, the "transportation problem" becomes not only the task of providing transportation service at the greatest overall economy, but also that of permitting to the *private enterprises* engaged in it the opportunity to earn a fair

* Improved highways and canals in this country were from the outset regarded as enterprises for profit, even when they were publicly-owned. There were toll charges on the old National Road and on the Erie Canal. As a matter of fact, most of the early improved highways were toll roads in private ownership. Tolls disappeared from improved waterways and highways when through traffic abandoned them for the railways, and the collection of tolls became no longer practicable. As far as historical precedent is concerned (as well as on sound economic grounds), when a revival occurred in the use of highways and waterways for through traffic, there was no reason why the practice of collecting tolls should not have been revived also.

profit, in order that they may make normal expenditures for labor and materials, and thereby make their normal contribution to general prosperity.

If the foregoing definition of the "transportation problem" be accepted, then the following observations may be made as to the extent to which the problem is *not* being solved:

It is *prima facie* evident that wasteful and duplicative expenditure of capital will occur, so long as highways and waterways are built without any consideration as to whether they are actually more economical than the existing facilities which they may supplant. It is also a *prima facie* conclusion that traffic cannot divide itself among railroads, waterways and highways on the basis of their true comparative economy—so long as railroad rates must include a charge for a return on the investment in the routes used, while charges for highway and waterway transportation include little or no such charges.

Should Any Transportation Capital Be "Free"?

Since transportation charges are not now calculated uniformly for all forms of transportation, the further *prima facie* conclusion follows that traffic is not now divided upon a basis of true comparative economy. Since the "transportation problem" consists in large part of conserving labor and capital in the performance of the nation's transportation, its solution must consist in equally large part of finding and applying measures which will cause traffic to divide among the several agencies upon a basis of their true comparative economy. If capital used in highways and waterways is to continue to be largely "free" (i. e., to the users), then some means must obviously be found of providing a supply of similarly "free" capital for users of the railways—else traffic will continue to divide itself uneconomically to the detriment of the national income.

The evidence that private enterprises engaged in transportation are not making a sufficient profit to attract a "normal" volume of new capital, so that they may make a "normal" contribution to national prosperity by their patronage of other industries and in the employment of labor, is even stronger than *prima facie*. The lack of normal profitability in the private enterprise segment of transportation may have some incidental causes other than that of the competition it is meeting from *20 billion dollars of public investment which does not have to earn a return for its owners*. But once a sufficient cause is found, it is a waste of time to look for others. If a man has typhoid fever and his well is located in the middle of his barnyard, why try to blame his illness on the position of the stars or the evil eye?

How Revive Private Enterprise?

The foregoing observations of conditions in the transportation industry are facts—not opinions. But these facts are not widely known, important as they are. As

to what action should be taken in the face of these facts, several courses are possible—but none of them, insofar as they protect the public interest, consists of doing nothing at all. It is inconceivable that transportation service can be provided for the American people at the maximum economy of labor and materials so long as huge and unpredictable investment of uncompensated public funds continues to compete with private capital which must be raised in commercial investment markets. It is also unlikely that private enterprises engaged in transportation can make their "normal" contribution to general prosperity through employment and patronage of other industry so long as they have to compete with a growing and unpredictable volume of no-interest and no-tax investment.[†]

No one who conceives of the "transportation problem" as consisting of securing the maximum economy in the use of labor and capital, coupled with a restoration of the possibility of profit in private investment, will deny that the factors mentioned herein are vital and inescapable—even if he believes that there are other basic factors which also merit consideration. **Yet the provision for an investigating and research committee in the transportation bill as it passed the Senate is the only recognition given in the entire proposed legislation to these fundamental factors of the present transportation chaos, and to the responsibility of the federal government for their correction.** But the work of such a committee, even if the law finally provides for its creation, will be largely valueless unless its membership is of such recognized ability and disinterestedness as to give credence and vitality to its findings. There exists today no government body with any relation to transportation which does not have some specialized interest, which would subject its findings in this area to attack, whether justified or not. So an entirely new body is needed, as the Senate bill has provided.

Trucks and Barges Are Not the Competitors

Loss of traffic to trucks and barges, and consequent depression in railroad revenues, employment and new investment, are not the disease from which the railroads are suffering. They are only the external symptoms of the disease. The disease itself is the recent colossal and continuing investment of billions of dollars of government capital in competitive transportation plant. A competitive investment of such magnitude would be disturbing enough under any circumstances—but the government's investment in transportation has been doubly and triply destructive of private in-

[†] There are some transportation specialists who believe that the railroads' competitive difficulties could be solved by various devices—among them, wholesale consolidation, the general adoption of containers easily transferred between rail and highway, the abandonment of "featherbed rules" and other exactions of organized labor. Any of these measures would improve railroad efficiency and would tend thereby to help the carriers to meet their competition. On the other hand, none of them singly or taken all together can be a final guarantee of railroad strength in competition with a bottomless federal treasury. Even if, by such devices, the railroads should decrease their unit costs by 50 per cent or more—what is to prevent the federal government from matching every dollar saved by the railroads with an additional two dollars in increased subsidies to their competitors?

vestment (1) because such investment is made without any thought of requiring it to earn a return or to yield *ad valorem* taxes, (2) because such investments are made by caprice, rather than by an objective weighing of the economic need to be served, and (3) because the future magnitude of such investments of "free" (i. e., to the users) capital is unpredictable, since no policy or principles have been enunciated which place any limits whatsoever upon it.

Predictions cannot be made as to the probable profitability of extensive investments of private capital in transportation, until a definite policy is adopted governing future competitive investments of public funds. And until private investment in transportation is revived, the industry will continue to present a "problem," and a deterrent to national prosperity.

Increased Traffic Diversion from Rails

One of the most interesting exhibits presented to the Railroad Carrier Industry Committee, in its hearings regarding minimum hourly wages on the railroads, was a chart comparing the indexes of national distribution and of rail shipments in the United States for the years 1928-1939, inclusive. This chart is a vivid representation both of our national economic difficulties and of the competitive difficulties of the railroads.

The distribution index portrays the trend in the total quantity of commodities moving from producer to consumer. It represents the traffic flow of the country, by whatever agency it may move. On the basis of 1928 as 100, the distribution index rose to 105 in 1929, dropped steadily to 54 in 1932, rose steadily to 92 in 1937, fell to 71 in 1938, and stood at 85 in 1939, a level 15 per cent below that of 1928, despite the increase in our population which has occurred since that time.

The index of rail shipments, based on average weekly carloadings translated to a tonnage basis, shows an almost constantly widening gap below the distribution index. Again on the basis of 1928 as 100, the rail shipment index rose to 104 in 1929, fell steadily to 50 in 1932, rose steadily to 79 in 1937, dropped to 60 in 1938 and stood at 70 in 1939, a level 30 per cent below that of 1928, again despite the increase in our population which has occurred since that time. This reduction in rail shipments was twice as great, relatively, as the reduction in total distribution. This is one measure of traffic diversion from the rails since 1928.

From the position occupied by the railroads in 1928, when substantial diversion already existed, rail shipments fell further below total distribution by 1 per cent in 1929; by 4 per cent in 1931; by 7 per cent in 1932; by 13 per cent in 1933; by 14 per cent in 1937; by 15 per cent in 1938, and by 18 per cent in 1939. In other words, of the total available traffic, the railways in 1939 carried 18 per cent less than they carried in 1928. This

is the greatest relative loss suffered by the carriers in the entire twelve-year period covered by the chart. The railways handled a lowered percentage of a lowered total volume of traffic. They are hurt both by diversion and depression.

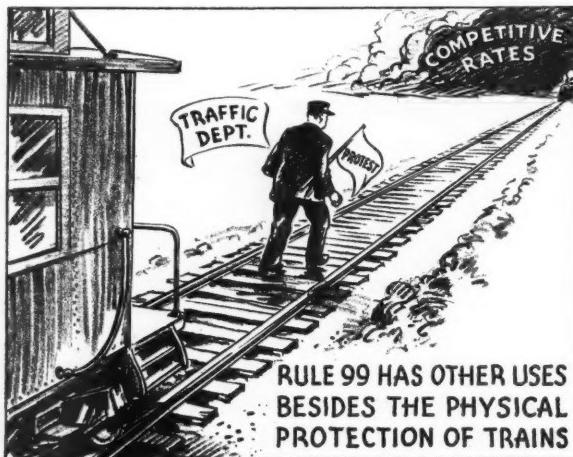
With distribution in 1939 standing at only 85 per cent of the 1928 level (despite an increase of more than 10,000,000 in our population between those years) and with rail shipments standing at only 70 per cent of the 1928 level, two immediate remedies for the railroad problem may be readily prescribed. (The unfortunate difference between editorial prescription and actual ac-

complishment is recognized.) The first prescription is to bring national distribution up to the 1928 level, and above it, if possible, to compensate for our increased population; to restore our volume of commerce per capita to the level formerly enjoyed and to restore, in consequence, our former living standards. The second prescription is to narrow the constantly widening gap between rail shipments and distribution: to enable the railroads to handle more and more instead of less and less of the country's available traffic. These are the solutions of the railroad problem, but they will require great changes in our national policies.

The Operating Dept. Knows the Method

Aside from its protection of human life, all Rule 99 amounts to at bottom is insistence on common-sense alertness at all times to prevent avoidable physical damage to railroad property, in a situation where experience has shown that such damage is likely to occur if alertness fails. But has not failure to enforce a "Rule 99" in other aspects of railroading probably damaged railroad property and income as much as a general laxness in flagging would injure them? For example:

In I. C. C. I. & S. Docket M-577, the motor carriers proposed truck rates on manufactured iron



and steel articles materially lower than those of the railroads. The railroads did not whistle out a flag of protest. So the I. C. C. held that there was insufficient evidence to justify a canceling order; and the reduced rates were allowed to become effective. The result is undoubtedly a loss of revenue much greater than several train accidents would have cost.

In I. & S. Docket M-654, the motor carriers proposed rates on manufactured iron and steel articles 1 cent lower than railroad rates. The railroads appeared at the hearing but offered no evidence. The Commission refused for lack of evidence to find the proposed rates unlawful.

In I. & S. Docket M-806, the motor carriers proposed rates equaling those of the railroads on manufactured iron and steel articles. The railroads

protested and actively opposed. The Commission held the proposed rates not justified.

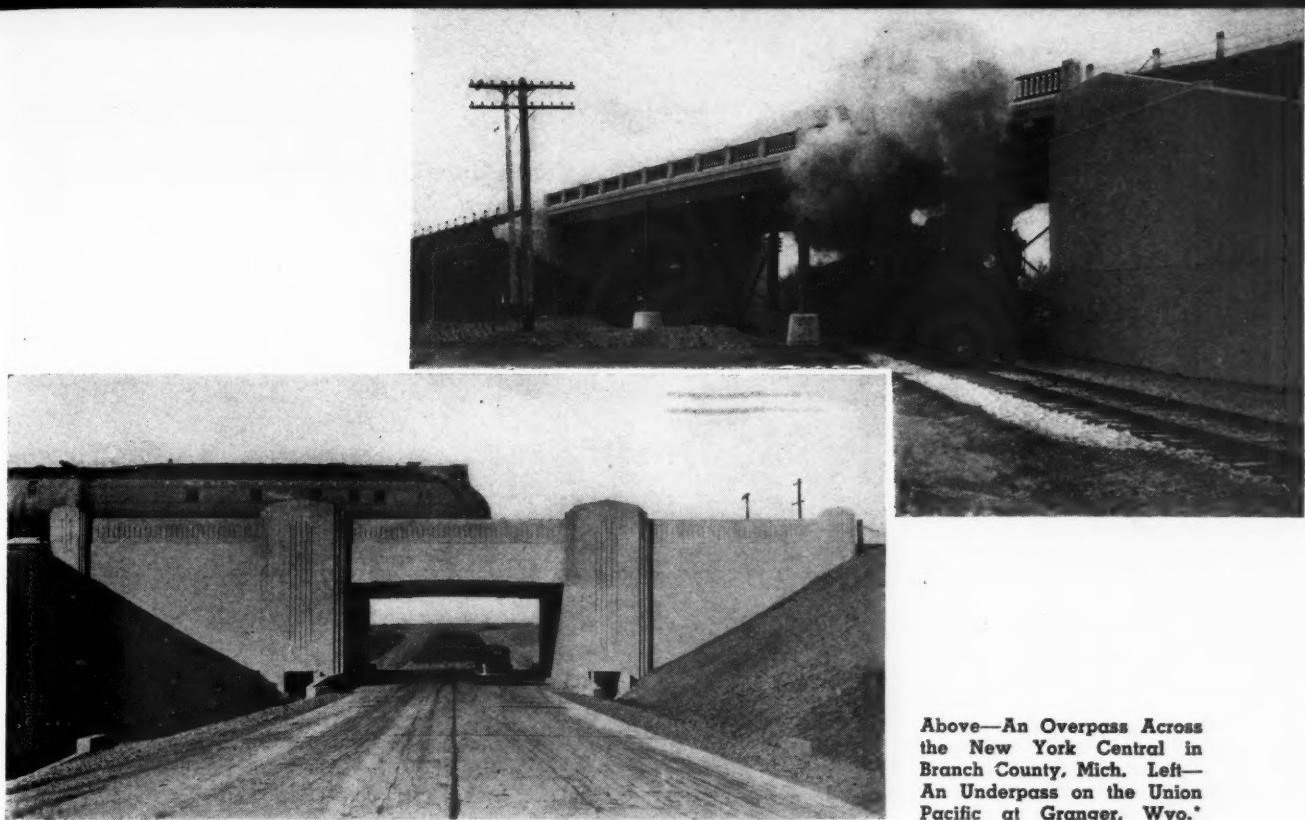
The basic conditions were approximately the same in all three of these proceedings—lack of evidence was the only reason given for decisions adverse to the railroads in the first two cases. The alertness and aggressiveness of the railroads in the third case accounts for the decision in their favor.

If the operating department had been involved under parallel circumstances, would it be given great credit for having prevented one accident by proper flagging—or would it not, rather, expect to be censured for the losses occasioned by failure to flag in the other two cases?

Once a competitive traffic "accident" has occurred, it is, of course, impossible to say positively that "improper flagging" was the sole cause, because maybe the "accident" would have occurred anyhow. But when the "flagging" wasn't done, it is at least a 50-50 guess that it *might* have prevented the "accident." For example, is it not fair to assume that the railroads' failure to oppose the motor carriers' proposals in Ex Parte MC-20, MC-21, MC-22 and MC-23 is largely responsible for the I. C. C. prescription in these proceedings? And the result is several thousand economically unjustifiable "pick-and-choose" motor carrier rates for application throughout Official and Western Trunk Line Territories, as minimums, which are as low, or lower, than railroad rates.

The aggressiveness of the motor carriers plus the railroads' lack of a "Rule 99" requiring constant protection of their interests in such proceedings, must be largely responsible for the increase of more than 50 per cent in truck traffic between the time the Motor Carrier Act became effective in 1936 and the end of 1939—and also for the 22 per cent additional increase in truck merchandise traffic this January while the railroads were taking a 1 per cent loss, and for the railroad loss of 6½ per cent for the first week of February. Probably also the absence of a *regime of alertness* for the protection of railroad property competitively, as Rule 99 protects such property physically, largely accounts for the fact that one of the large truck operators in Official territory has been able to turn a million dollar annual loss into a sizeable annual profit.

Tempus fugit.



Above—An Overpass Across the New York Central in Branch County, Mich. Left—An Underpass on the Union Pacific at Granger, Wyo.*

Federal Grade-Crossing Program Shows Quickened Pace

Projects now being completed at faster rate—Other developments include move to solve right-of-way problem and progress in perfecting hazard formula

SEVEN years have now passed since the federal government inaugurated its first railway-highway grade-crossing elimination and protection program and since that time the work has been carried forward continuously under different legislative acts, and has been prosecuted at an accelerated tempo during the last 12 months. Furthermore, prospects are good that pending legislation providing for increased appropriations of federal grade-crossing funds for the fiscal years 1942 and 1943, as compared with the two previous years, will be acted on favorably by Congress, thus assuring a continuation of this work for some time to come.

The fact that the funds allotted to the states for grade-crossing elimination and protection work are being translated into finished projects more rapidly and with less friction than at any previous time is due in some measure to the greater experience and increased familiarity with required procedure on the part of the different agencies involved. However, much of the credit for this favorable state of affairs must go to the Public Roads Ad-

ministration (formerly the Bureau of Public Roads) of the Federal Works Agency, which, under the leadership of Thomas H. MacDonald, commissioner of public roads, is responsible for the administration of the grade-crossing funds. While the federal allotments for grade-crossing work are expended directly by the state highway departments, the Public Roads Administration approves all plans for such projects and in general exercises supervision over the expenditure of the funds.

It is to the further credit of the Public Roads Administration that it has taken the initiative with respect to two lines of endeavor which, if carried to fruition, are expected to have a direct and favorable effect on the planning and execution of grade-crossing projects. One of these, now nearing consummation, is leading to the development of a formula for determining the hazard ratings of individual grade crossings, while the other consists of an effort that is being made to obtain legislation that will simplify the problem of obtaining rights-of-way for grade-crossing elimination and other highway projects—a problem that is now a source of troublesome delays to such projects. Both of these developments are described in detail later in this article.

It will be recalled that the policy of making federal funds available for defraying the entire costs of railway-highway grade separation structures had its inception in the National Industrial Recovery Act of 1933, which contained a provision authorizing the states to use for grade-crossing separation and protection purposes any part of their respective allotments of the \$400,000,000 appropriation for highway purposes that was provided for in that law. A supplemental appropriation of \$200,-

* All photographs of grade separation structures by courtesy of the Public Roads Administration.

Status of United States Works Program and Federal-Aid Grade Crossing Projects for all States as of January 31, 1940

	Completed				Under Construction				Approved for Construction				Balance of Funds available for programmed projects			
	Number of Crossings				Number of Crossings				Number of Crossings							
	Estimated Total Cost	Federal Funds	Eliminated by Separation or Relocation	Reconstructed Protected	Estimated Total Cost	Federal Funds	Eliminated by Separation or Relocation	Reconstructed Protected	Estimated Total Cost	Federal Funds	Eliminated by Separation or Relocation	Reconstructed Protected				
Works Program Projects*	\$192,970,962	\$186,558,043	2,060	380	1,115	\$4,380,496	\$3,720,193	21	12	46	\$1,125,992	\$1,046,085	13	1	33	\$4,675,679
Federal-Aid Projects†	42,796,160	41,808,296	450	118	829	27,896,832	26,689,881	209	42	271	11,948,653	11,400,774	100	26	520	67,444,866
Totals . . .	\$235,767,131	\$228,366,339	2,510	498	1,944	\$32,077,318	\$30,410,074	230	54	317	\$13,074,645	\$12,446,859	113	27	553	\$72,120,545

*As provided by the Emergency Relief Appropriation Act of 1935.

†As provided by the several Hayden-Cartwright Acts.

Includes apportionment for the fiscal year 1941.

000,000 for continuing the program thus initiated was made available in the Hayden-Cartwright Act of 1934.

Seven years have elapsed since the NIRA grade-crossing allotments (designated as Public Works funds) were first made available and most of this money has now been expended. As of December 31, 1939, a total of 704 grade-crossing elimination structures, involving a total estimated cost of \$33,325,625, had been approved for construction with Public Works funds, while other projects had been approved providing for the installation of protective devices at 709 grade crossings at a total cost of \$1,594,000. Moreover, plans had been approved for the elimination of 169 grade crossings by the relocation of highways.

The National Industrial Recovery Act was followed in 1935 by the Emergency Relief Appropriation Act, a pump-priming measure involving a total appropriation of \$4,880,000,000, of which \$200,000,000 was set aside for use in separating grades, reconstructing existing grade separations, relocating highways to eliminate crossings, and installing automatic protective devices at grade crossings. Continuing a precedent established by the National Industrial Recovery Act, it was specified that the funds authorized in the 1935 legislation were to be available for defraying the entire costs of crossing projects except those incurred in the acquisition of land and certain others.

While the inauguration of large-scale construction activity under the 1935 act was delayed somewhat by the retarding influence of certain make-work rules connected with the expenditure of the funds, these were eventually modified and the work then quickly gathered momentum. The status of the grade-crossing work (designated as the Works Program) that has been undertaken under this act is shown in the top line of the accompanying table.

Status of Works Program

This table shows that as of January 31 of this year, all but \$4,675,679 of the \$200,000,000 had been earmarked for individual projects that were covered by approved plans. It is an interesting fact that this figure is not materially below the total of unassigned funds—\$5,339,278—as it stood on January 31, 1939. This does not mean, however, that there has been a lack of progress in connection with the program, but rather that in many instances projects have been completed for less than the estimated costs, resulting in the differences being returned to the unassigned column. These returned funds, of course, became available for other projects, but frequently it has been necessary for the states to allow them to accumulate over a period of time before a sufficient amount becomes available for undertaking new work. In eight states all of the grade-crossing funds

that were made available under the Works Program have been expended, in two states all funds have been absorbed in completed projects or in work approved for construction, while in ten others the balance of unassigned funds is less than \$15,000 in each state.

From the table it will be seen that completed grade-crossing projects undertaken as a part of the Works Program have resulted in the elimination of 2,060 grade crossings, the reconstruction of 380 grade-separation structures and the installation of protective devices at 1,115 such crossings, the estimated total cost of all this



A Curved Highway Overpass Across the New Orleans & Northeastern in Louisiana

work being \$192,970,962. It is the latter figure that reveals the true nature of the progress that has been made during the last year for this total showed an increase of \$11,280,663 for the twelve months ending with January 31. As of the same date the projects that were under construction as part of the Works Program had a total estimated cost of \$4,380,496, while those that had been approved for construction but which had not yet reached the active construction stage had a total estimated cost of \$1,125,992.

Further Legislation

After the Works Program had been under way for about a year, provision was made for the continuation of the federal grade-crossing work on an enlarged basis by the passage of the Hayden-Cartwright Act of 1936, which authorized federal appropriations for grade-crossing purposes of \$50,000,000 each for the fiscal years 1938 and 1939. This act stipulated that the grade-crossing funds appropriated in accordance with its provisions were to be used for the same purposes as those provided by the Works Program, with the exception that

they were also available for the elimination of grade crossings by the relocation of lines of railroad.

Provision for extending the federal program still further was made in the Hayden-Cartwright Act of 1938 which authorized the appropriation of \$20,000,000 of grade-crossing funds for 1940, and \$30,000,000 for 1941. Construction jobs undertaken under the provisions of the Hayden-Cartwright Acts are known as "Federal-Aid" projects, and are thus distinguished from the Works Program projects that are being carried out in accordance with the Emergency Relief Appropriation Act of 1935.

Progress of Federal-Aid Program

The figures in the second line of the table show the status of the Federal-Aid grade-crossing program as of January 31. From this table it is evident that, since the Federal-Aid grade-crossing programs were undertaken, projects that had been completed up to January 31, had resulted in the elimination of 450 crossings by separation or relocation, the rebuilding of 118 existing grade-separation structures, and the protection of 829 grade crossings, the total estimated cost of these projects being \$42,796,169. On the same date projects having a total estimated cost of \$27,696,832 were under construction, while others having an estimated cost of \$11,948,653 had been approved but had not yet been undertaken.

As shown in the table, grade-crossing work that had been completed as of January 31 under both the Federal-Aid program and the Works Program included the elimination of 2,510 crossings, the reconstruction of 498 existing structures and the installation of protective devices at 1,944 crossings. The completion of all these projects involved a total estimated expenditure of \$235,767,131. In addition, projects having a total estimated cost of \$32,077,318 were under construction, while other projects having an estimated cost of \$13,074,645 had been approved and were ready for the award of contracts. Because of the different manner in which the statistics are kept, it is not possible to add to the above figures the number of crossings eliminated by projects undertaken under the terms of the National Industrial Recovery Act of 1933.

An Impressive Record

The magnitude of the grade-crossing programs that have been undertaken with federal funds may be indicated in a somewhat different manner. To date, the funds appropriated for this work under both the Federal-Aid program and the Works Program total \$350,-

000,000, and as of January 31 the total estimated cost of grade-crossing projects undertaken with these funds—including all completed projects and those under construction or approved for construction—came to \$280,919,094. The total amount of work embraced in this figure includes projects involving the elimination of 2,853 crossings, the reconstruction of 579 existing structures and the protection of 2,814 crossings—a truly impressive record.

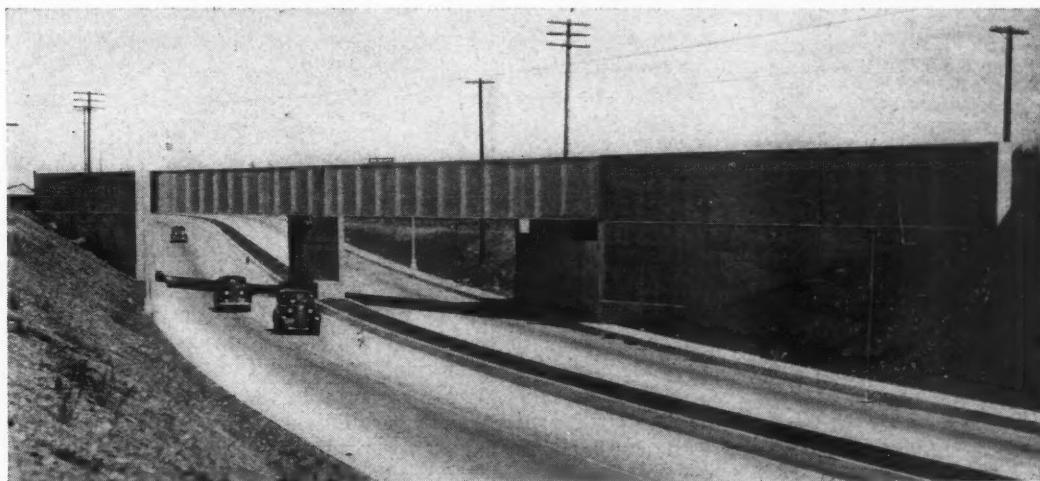
Equally impressive is the accelerated rate at which the work is now being prosecuted as compared with a year ago. In the first seven months of the fiscal year 1939—that is, from June 30, 1938, to January 31, 1939—the total value of all Federal-Aid grade crossing projects that were brought to completion came to \$10,057,183. However, the total estimated cost of such projects that were completed during the first seven months of the 1940, or current, fiscal year, amounted to \$25,576,874, indicating that projects are being completed at more than double the rate that prevailed last year. While this situation may be attributable in part to the fact that the larger projects that were undertaken in the early years of the program may only now be reaching completion, it is due in some measure at least to more efficient prosecution of the work on the part of the various agencies involved.

Causes of Delays

However, there are still certain bottle necks in the flow of the funds that have not been entirely removed. One of the most important of these, namely, the difficulty that is frequently encountered in obtaining necessary property, has already been mentioned. The difficulty in this regard is reported to be attributable in large measure to the archaic nature of the laws in various states governing the acquisition of property for right-of-way purposes.

Political considerations involving the various state highway departments continue to be another cause for delays in putting the grade-crossing funds to work. An outstanding example of the extent to which the state programs can be retarded in this manner is provided in the case of Georgia, where political friction involving the highway department was recently the subject of front-page news, even outside the state. Under the Works Program, Georgia was apportioned a fund of \$4,895,949, but as of January 31 of this year \$1,220,631 of this fund still remained unassigned to approved projects. In contrast, Michigan and Kansas, with allotments of \$6,765,197 and \$5,246,258, respectively, had converted all of their funds into completed projects, and many other

This Underpass Presents an Example of the Manner in Which a Center-Strip in the Highway Works in With the Use of a Center Pier in the Bridge



states, as noted previously, had reduced the unassigned portions of their allotments to insignificant amounts.

One factor that apparently has had some influence in speeding up the Federal-Aid grade-crossing program is the shortened length of time in which these funds are now available to the states. In the 1936 Hayden-Cartwright Act it was specified that the funds would be available for two years following the fiscal year for which



An Unusual and Attractive Structure Is This Concrete-Arch Underpass in California

they were made available, which meant that the states had three years in which to spend their allotments. However, the act of 1938 limits the availability of funds for 1940 and 1941 to one year following the fiscal year for which they are authorized, thus reducing the total time in which the funds are available to two years. It has been necessary for the Public Roads Administration to resort to considerable urging in a number of instances to get certain states to spend their funds within the allotted time.

Pending Legislation

As mentioned at the outset, legislation is now pending which, if passed, will provide for continuing the Federal-Aid program through 1943. This legislation is in the form of another Hayden-Cartwright bill which carries a provision authorizing appropriations for grade-crossing purposes for each of the fiscal years 1942 and 1943. The bill was presented for committee consideration in skeleton form, without indicating the amounts of the several appropriations. Hearings have already been held on the bill in this form before the House of Representatives Committee on Roads, and all of those testifying on the bill agreed in recommending \$50,000,000 as the annual grade-crossing authorization and there is every reason to believe that the committee will include this amount in its recommended bill. It is expected that Senate action will await passage of the bill in the House; but it is confidently expected that the bill will finally pass with favorable action on the grade-crossing provisions.

It is this bill that contains the provisions pertaining to the acquisition of rights-of-way that were mentioned at the beginning of this article. These provisions are contained in a separate section of the bill, known as Title II—Rights-of-Way, and are the outgrowth of the difficulties and problems encountered in obtaining rights-of-way, particularly in large cities, that are necessary for carrying out grade-separation and related projects. They would simplify such problems by authorizing the commissioner of public roads to acquire in the name of the

United States, by purchase or lease, and to use, sell or exchange any property that may be necessary to the prosecution of any roadway project. The Reconstruction Finance Corporation would be given authority to supply the commissioner of public roads with any funds needed for the purposes authorized in the act.

Also, the bill would authorize the R. F. C. to make loans to states, municipalities and other public bodies for the purpose of financing the acquisition of property necessary or desirable to the consummation of road projects. However, it is specified that loans of the latter nature shall be made only after the approval by the commissioner of public roads of plans and specifications for the projects involved. While the section of the bill embodying these provisions may not have much chance of being passed by this session of congress, it is felt that the hearings regarding it will have the effect of directing attention to a problem that is proving a troublesome stumbling block to the consummation of many meritorious projects.

Hazard Formula Nearly Ready

There is still another development in the making that is destined to exercise an important influence in the future on the expenditure of federal grade-crossing funds. This is the work, also mentioned briefly at the beginning, that the Division of Highway Transport and



The Public Roads Administration Is Continuing to Emphasize the Use of Short Gate Arms at Grade Crossings in Connection with Flashing Light or Wigwag Signals

Control of the Public Roads Administration has had under way for several years looking to the development of a hazard rating formula for determining the priority of grade crossings for elimination or protection. Present indications are that this work will be brought to a successful conclusion within the next month or two.

To obtain information for the development of this formula, a nation-wide survey of grade crossings is being carried out as part of a comprehensive highway planning survey which was undertaken in 1935 and is still in progress. The work involved in making the survey is being conducted by the respective state highway departments under the direction of the Division of Highway Transport and Control. In the grade-crossing phase of the survey, the information that is being obtained includes all data that are considered to have a bearing on the probable rate at which accidents may be expected to occur at individual crossings. These data include the

character of the highway traffic at each location and the physical characteristics of the crossing, such as the number of railroad tracks, the extent to which the railroad is visible from given points on the highway, the approach grades of the highway, and complete information regarding the nature of existing crossing signs or other protective devices. From the railroads, the state highway departments are obtaining information regarding the density and character of the train traffic, and the accident records at individual crossings for the latest five-year period.

It is the intention in connection with the survey to obtain complete information regarding all grade crossings in the United States, and at the present time the survey work has been completed or is in progress in 46 states. For the purpose of determining the relationship between the probability of accidents occurring and the physical and other characteristics of crossings—in other words, to develop a hazard rating formula—the Division of Highway Transport has made extensive mathematical analyses of the information that it has obtained pertaining to crossings that have accident records.

A Complex Problem

Because of the complex nature of the problem, the work of developing the formula has presented many difficulties. To date information has been obtained for more than 2,000 crossings with accident records in 19 states and, using these crossings as a sample group, a tentative formula has been developed that appears to be satisfactory in its general form, although it has not yet been perfected. In the work of developing the formula, a basic equation was set up which contains functions representing the highway traffic, the train traffic, the physical characteristics of the crossing, and the character of the protection. The problem then resolved itself into a matter of determining the fractional exponents for the different functions that would give them the proper weight in the formula. This is being done by the application of a complicated mathematical process to the survey information for the 2,000 crossings with accident records.

When the formula has been perfected it is possible that it will be incorporated in the regulations governing the expenditure of federal grade-crossing funds that

along with various other factors in planning crossing programs. It is pointed out that one application of the formula will be to determine the extent to which the hazard ratings of given crossings can be reduced by the installation of protective devices.

In any discussion of the federal grade-crossing programs it is interesting to note the varying extent to which these funds have been utilized in the different states for the protection of grade crossings. The lead that was obtained by Illinois in this respect early in the federal programs has been maintained up to the present, and as of January 31 a total of 450 such projects in that state had been completed or were under construction or on the approved list. Indiana was next with 388 projects, while North Carolina was third with 324 and Iowa was fourth with 302. On the other hand the efforts along this line in a number of states have been of an exceedingly modest nature, and in four states (Louisiana, Missouri, Montana and Rhode Island) no crossing protection projects whatever have been undertaken during all the federal programs.

During the last year no changes have been made in the regulations regarding approved types of protection signals or other devices, although the Public Roads Administration has continued to emphasize the use of short gate arms as a supplementary protective measure to flashing-light or wigwag signals. The administration considers such gate arms of particular value when installed at crossings in high-speed territory where motorists may be inclined to underestimate the speeds of trains.

Because of certain difficulties connected with the system of installing crossing-protection systems under contracts awarded on a competitive basis, the Public Roads Administration has issued a memorandum outlining a substitute procedure for carrying out such projects. This memorandum, which was issued on May 22, 1939, provides that where railroad companies have signal departments suitably equipped to handle installations of grade-crossing protective devices, such devices may be installed by their forces on a straight force-account basis after agreement has been reached regarding the type to be used. All materials which are required for such installations may be purchased direct by the railroad companies in the same manner as other purchases are made by the carriers, or may be taken from the railroad's



The Concrete-Covered Side Slopes in This Underpass on the Southern Pacific Impart an Unusual Appearance

are compiled by the Public Roads Administration for the guidance of the states in setting up their individual programs. It is not anticipated that the formula will be employed as a rigid yard-stick in determining the priority of crossings for elimination, but rather that ratings obtained by application of the formula will be considered

stores if the materials are already in stock. It was pointed out that this procedure was to be in effect for a trial period only and that its continuation would be contingent on costs being kept in line with those incurred under previously approved methods of installing protective devices.

Electric Locomotives for the



185-Ton, 63-In. Gage, 3,000-Volt, Direct-Current Electric Passenger Locomotive Built By the General Electric Company

THE Paulista Railway, Brazil, S. A., inaugurated electric operation of part of its lines in 1921 and after several extensions of the original electrification now operates a total of 178 electrified route miles. Of this total, 28 miles is laid with double track while the remainder of the electrified lines is single track. Construction is now under way for a further extension of the electrification to include the Ityrapina-Bauru and Jahu branch, an additional 102 miles of single track line which, in the past, has been operated on meter gage. This branch is being widened to 63-in. gage, concurrently with the electrification, to correspond to the existing wide gage trackage. This electrified system is the most extensive in point of heavy route mileage and number of locomotives now operated in South America.

Of the total number of 49 locomotives, the General Electric Company has furnished 34, the general characteristics of which are shown and compared in Table I. An inspection of the horsepower ratings for the passenger locomotives indicates the progressive attitude displayed by the management of the Paulista lines in keeping its passenger service abreast of demands for increased speeds in passenger train operation. Since the first passenger locomotives were furnished, the maximum permissible speeds with the new locomotives have been increased by 70 per cent; while the continuous horsepower has been

increased by 150 per cent. Current activities, involving the elimination of curvature, installation of heavier rail sections and revised super-elevation of outer rail, coupled with the higher horsepower ratings available in the new locomotives, will result in an express-passenger service comparable to the best of those found on the principal railroads elsewhere in the world.

The four new locomotives recently shipped to Brazil are intended for service between Jundiah and Rincao over the lines now electrified, and between Ityrapina and Bauru when this section has been electrified. Both of these sections are laid over mountainous terrain involving grades of 1.85 per cent. Little, if any, level track is encountered and because of the many gradients worked, regenerative braking finds ready application with consequent economies in locomotive maintenance and power consumption.

The continuous rating of the locomotives is 4050 hp. while their rated performance on an hourly basis is 4470 hp. The running gear is painted black and the cab olive green, set off by a chromium plated belt rail flared at each end to include the Paulista monogram. The number plates at each end have illuminated translucent white figures.

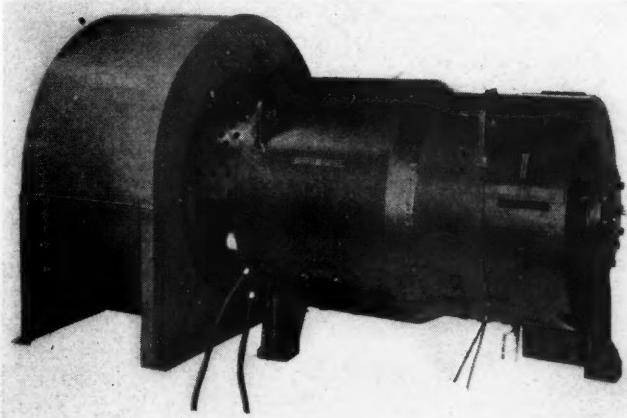
All-Welded Trucks

The trucks were fabricated completely by welding. Two, two-axle guiding trucks and two articulated three-axle driving trucks form the 2-C+C-2 running gear. Each driving truck has a rigidly fabricated frame extending longitudinally over the guiding truck forming the

The Paulista

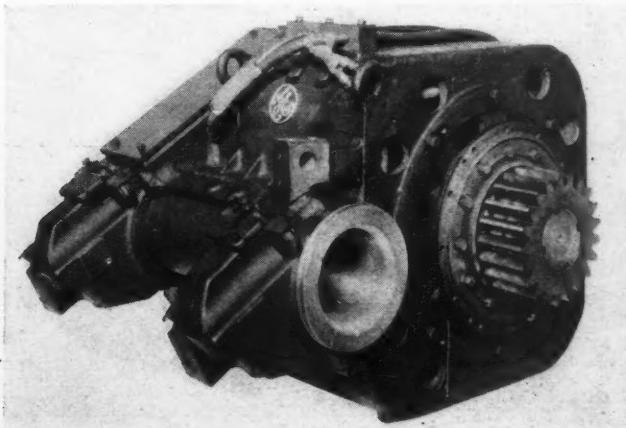
History of Brazilian electrification shows rapid increase in speed and capacity of locomotives

BELOW—One of the Motor-Generator-Blower Sets Consisting of a 3,000-Volt Motor, 65-Volt Generator and a 16,000-c.f.m. Blower



Transportation Engineering Department, General Electric Company

By Frank Guillot



BELOW—Control Equipment in One of the Two Operator's Positions—**TOP RIGHT**—Direct-Current Traction Motor From the Pinion End—There Are Six Motors On the Locomotive



bumper beam and draft gear housing which carries the coupler and other attachments. This frame extension is supported through a center plate mounted upon a laterally moving bolster carried on the guiding truck. This bolster is provided with lateral gravity restraint to guide the driving wheels, and to allow lateral displacement of the guiding wheels relative to the driving wheels in negotiating curves.

Each guiding truck has a tail piece attached to its inner frame which in turn is linked to a spring-restrained rocker mounted on the main driving truck frame. This device is designed to prevent undue oscillations of the guiding truck around its center plate and to add stability at high speeds.

The driving and guiding trucks are equipped with an equalizer system consisting of leaf springs with coil springs at the end support and equalizer beams connecting the inner ends. By this construction the total weight of the locomotive is evenly distributed over all axles. With the exception of wheels, axles, journal boxes, and about half the weight of each traction motor, the locomotive is spring-supported.

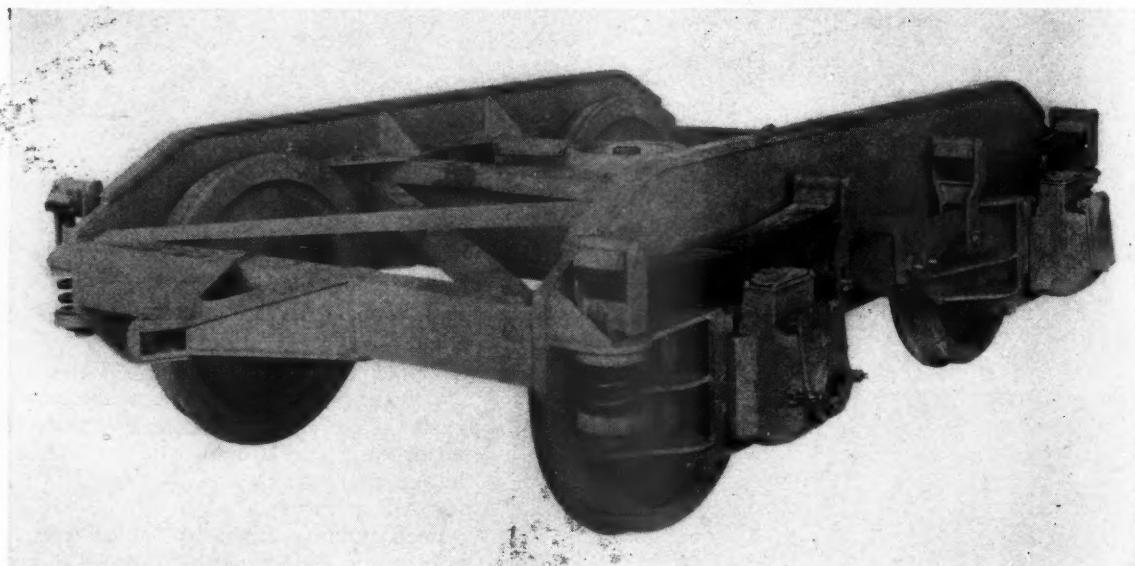
A roller-type lateral restraint device, with a relatively high initial displacement force, is attached to one driving truck frame near the articulated joint and to the cab underframe. This device acts as a stabilizer for the driving trucks preventing lateral oscillations at high speeds. It also has a steady effect on the cab in relation to the driving trucks.

The braking is a combination of air and vacuum systems. Air is used for the locomotive brakes, which are applied to the driving wheels only through a single shoe to each wheel. Pressure is applied by two 14 in. x 12 in. brake cylinders for each driving truck. The passenger equipment employs vacuum brakes. The control of the two braking systems is co-ordinated on the locomotive to apply the air brakes to the locomotives whenever the vacuum brakes are applied to the train.

The cab underframe is fabricated completely by weld-

Table I—General Electric Locomotives in Service on Paulista Railways

Type of Loco. (Service)	Switching	Freight	Freight	Passenger	Passenger	Passenger
Number furnished	9	8	4	4	5	4
Year furnished	(5) 1924; (4) 1926	1921	1930	1921	1928	1939
Wheel arrangement	B—B	B+B	1—C+C—1	2—B+B—2	1—C+C—1	2—C+C—2
Length overall—ft., in.	41-6	39-2	58-8	55-0	58-8	75-0
Width overall—ft., in.	10-1½	10-1½	10-7½	10-1½	10-7½	10-7½
Height over trolley locked down—ft., in.	13-3	14-3	14-3	14-3	14-3	14-3
Total wheel base—ft., in.	30-4	26-8	51-0	46-0	51-0	66-0
Rigid wheel base—ft., in.	8-0	8-8	13-6	7-9	13-6	13-10
Total weight—lb.	122,300	200,000	294,600	240,000	294,600	364,000
Weight on drivers—lb.	122,300	200,000	237,000	160,000	237,000	270,000
Weight per driving axle—lb.	30,575	50,000	39,500	40,000	39,500	45,000
Weight per guiding axle—lb.	None	None	28,800	20,000	28,800	23,000
Dia. driving wheels—in.	40	42	46	42	46	46
Dia. guiding wheels—in.	None	None	36	36	36	36
Number of motors	4	4	6	4	6	6
Gear ratio	64/17	82/18	84/24	70/30	77/31	57/21
Total cont. rating hp.	510	1600	2418	1600	2418	4050
Total one-hr. rating hp.	726	1680	2724	1680	2724	4470
Cont. tractive effort lb.	15,200	28,820	27,550	14,720	19,550	30,000
One-hr. tractive effort lb.	24,800	30,600	43,100	15,680	30,600	34,500
Speed cont. rating mph.	12.6	21	32.9	41.25	46.35	50.3
Speed one-hr. rating mph.	11.0	20.8	23.7	40.5	33.4	48.8
Maximum safe speed mph.	40	28	50	53	68	90



One of the Guiding Trucks—The Tail Piece Shown at the Near Or Inner End of the Truck Serves As a Connection for the Lateral Restraint Device

ing. The two main longitudinal sills are 21 in. I-beams welded to cross sills and further braced and supported in position by heavy floor plates. The main air duct is a chamber formed in the space between the main longitudinal sills. The air is forced from this chamber through individual ducts to the various pieces of apparatus.

The cab sides and ends were built as separate assemblies, set into position on the underframe and then welded in place. The roof, consisting largely of covered hatches, was constructed and assembled on the locomotive in a similar manner.

The main apparatus cab includes the entire space between the two operators' cabs and is subdivided into three compartments. The high voltage control compartment, completely enclosed, occupies the center while such auxiliary apparatus as motor-generator-blower sets, compressors and exhausters are located at each end. Operators' cabs at each end of the locomotive are joined to each other by passageways along the cab sides.

The cab is supported by centerplates located on the main driving truck frames between the outside driving axles and the guiding trucks. Further support is supplied by four spring loading pads located on the driving trucks just inside the cab line. These pads assist in

properly proportioning the weight between the driving and guiding trucks.

The high voltage compartment is fitted with removable side covers, which permit access to the equipment. End doors are used for access to the interior of the compartment. The entire arrangement, when side covers are removed, affords complete accessibility to all apparatus with ample space for men working inside while other work can be carried on from the side aisles, thus giving access to both front and back of all apparatus at the same time. This arrangement renders inspection and repairs rapid and inexpensive. Covers of hatches in the roof over the compartment are removable for major repairs.

Electrical Equipment

The six traction motors are of the commutating pole, forced-ventilated type. This motor (GE-729) is designed for 1500 volts and insulated to operate two in series on 3000 volts. It is the most powerful axle-hung traction motor yet built by the General Electric Company for this voltage. The armature bearings are of the anti-friction roller type. Each motor is suspended from the axle by two constant level oil-filled waste-packed bearings and by a spring nose support carried on the

truck transom. The drive is accomplished by means of a single wide-faced pinion on the motor shaft engaging a gear of heat-treated steel. The gear is of two-part construction consisting of the hub which is pressed onto the axle and the periphery, carrying the gear face, which is bolted on the hub. Lubrication is effected by a splash and semi-forced feed system actuated by centrifugal force.

The auxiliary equipment includes two compressors and two exhausters which are duplicates of those in existing locomotives now operating on the Paulista Railways; two 3000/65-volt motor-generator sets, duplicates in design and capacity; and two blowers. The blowers, rated at 16,000 c. f. m. at 1350 r. p. m. each, furnish ventilating air to the traction motors, accelerating resistors, exhausters and motor-generators.

The rotor of the blower is overhung from the motor-generator on an extended shaft from the motor end of the set. A feature of this combination is the single commutator 3000-volt series wound motor. Included in the design are commuting poles of the so-called "high speed" type which, coupled with an improved commutator construction, afford excellent commutation under varying load conditions and at all operating speeds. The use of the series motor is made possible by a direct-connected blower load eliminating the danger of over-speeding.

The generator of one of these sets supplies power for the compressors, exhausters, control and lights. It is operated at 65 volts, held constant within close limits, by a voltage control relay. The second generator on each locomotive is employed as an exciter for regenerative braking. The control permits the use of either machine as an auxiliary generator.

Power is collected from the 3000-volt overhead line by two air-raised, gravity-lowered pantographs equipped with two contact shoes, each working independently. The main shafts of the operating mechanism are equipped with roller bearings.

A General Electric type JR high-speed circuit breaker is connected in the main power circuit ahead of the line and traction motor switches for short circuit and overload protection. The rapidity of operation of this circuit breaker also affords power and substation protection by minimizing heavy demands.

The three-speed system of control employed gives traction motor combinations of six in series; three in series, two groups in parallel; and two in series, three groups in parallel. Provision is also made for multiple unit operation should loading exceed the capacity of a single unit.

The master controller has four handles all located below the lower edge of the front window to permit maximum visibility. For the full series running connection there are ten resistance steps and one full field running position. For the connections involving three parallel groups of two motors in series eight resistance steps are used and one full field running position. Two reduced field running positions for each motor combination are

obtained by moving the braking handle forward through two notches. The various motor combinations for regenerative braking are obtained by a third or selector handle. The fifteen braking positions for motor combinations, as called for by the position of the selector handle, are secured by movement of the braking handle in the direction opposite to that for the reduced field positions. The fourth handle is a reverser. All are mechanically interlocked to prevent improper operation.

The accelerating resistors which are connected into the highest current circuits of the traction motors are cast iron grids of heavy cross-section, while those in the lower current circuits are edgewound ribbon of chromium-aluminum iron alloy. All resistors are insulated from their frames with large mica sections while the resistor frames are insulated from their supporting structures with heavy sections of porcelain thus providing double insulation throughout.

Overload relays in the traction motor circuit protect against overloads by automatically opening the high speed circuit breaker.

An overvoltage relay is used to protect the equipment against excessive voltage during regenerative braking operation. Its function is to open the high speed circuit breaker when voltages in excess of a predetermined value are obtained.

The traction motor combinations are obtained by an electro-pneumatic series-parallel switch.

Regeneration is accomplished by using the traction motors as generators separately-excited by the generator of one of the motor-generator sets. The braking connections are obtained through a braking switch operating electro-pneumatically with some of the contractors controlled through the master controller. While regenerating, the exciter operates with a range of 45 to 58 volts depending on the motor combinations used and the speed at which the braking is being done.

An instrument panel directly in front of the engineer mounts the following instruments—line voltmeter, traction motor field ammeter, traction motor armature ammeter, vacuum gage, air gage, locomotive speed indicator, under-voltage relay indicating light and control switch buttons, bell ringer and sander valves. The master controller is on the left and the air and vacuum brake valves are on the right.

To guard against excessive speeds and to make it possible for the operator to observe accurately all slow order and other speed restrictions, the new G-E speedometer is employed. A permanent record of the speeds operated during an entire trip is obtained by a mechanical speed recorder installed in the auxiliary apparatus cab.

A record of the power performance is obtained through a duplex dial watthour meter. One set of dials records the energy taken from the line by the locomotive while motoring and a second set records the energy returned to the line during regenerative braking.

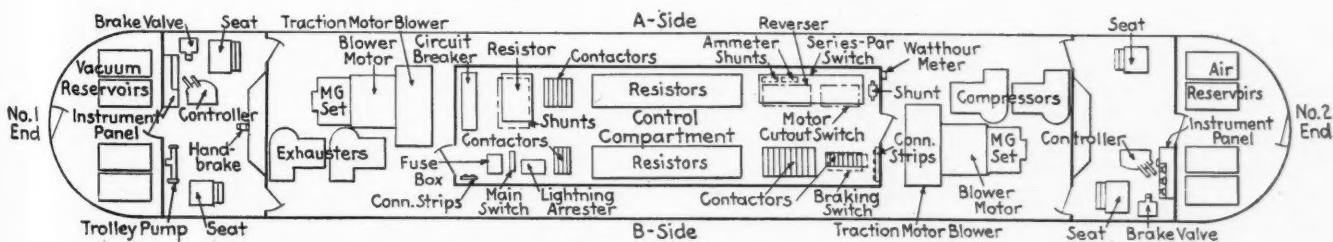


Diagram Indicating Location of Apparatus on the Locomotive

\$477,000,000

For Maintenance

in 1940



Rail Laying by Specially Equipped Forces Will Constitute a Major Item in the Enlarged Programs of Many Roads

WITH prospects favorable for earnings to remain at a relatively high level, all signs point to a year of increased maintenance activity in 1940. This prediction is based in part on the fact that the railways have included more work equipment in their budgets for this year than has been purchased in any year since 1929. It is also confirmed in part by the fact that the roads now have on hand or on order a larger tonnage of new rail than was laid during the entire year of 1939, with a number of orders still pending. It has long been recognized that the amount of rail laid in any year is a reliable index of the maintenance activities as a whole for that year. More direct evidence of this increased activity is found in maintenance budgets of the railways which as a whole will be increased; on individual roads these increases will range from 4 to 30 per cent, compared with 1939 which was the year of second largest expenditures for maintenance since 1931.

Authority for these statements is found in information given us by 47 representative roads in the United States, with 172,000 miles of lines, and 2 in Canada. Eighteen of these officers stated definitely that their maintenance programs for 1940 will be larger than for

According to information given us by 49 representative roads, the railways will increase their expenditures for maintenance of way and structures in 1940 by \$11,000,000, bringing the total expenditures for the year to more than \$477,000,000, thus making this year the second best with respect to maintenance activity since 1931. This will include an appreciable increase in the amount of new and released rail to be laid, more work equipment, 500,000 cu. yd. more ballast, materially more track surfacing, more weed destruction, more bridge and building work and an appreciable increase in the maintenance of water-service facilities. Details of these expanded programs are presented in this article, which is based on information given us by ranking maintenance officers on 49 roads.

1939, reporting increases that ranged in magnitude from \$50,000 to \$1,800,000. Offsetting these increases, 21 roads reported that while, in general, their plans do not contemplate larger total expenditures than were made in 1939, they expect to spend as much as was spent in that year. A number in this group indicated that while their total expenditures will not be increased above those for 1939, they expect to lay more rail, surface more track or build up more rail ends; others will spend more money for bridge maintenance or replacements, for building repairs or for bridge and building painting; while still others will make larger expenditures for signals. Seven of the roads from which information was received have not yet completed their budgets, but four of them expect to increase their expenditures, particularly for rail, ties and ballast.

Several of the roads in the latter two groups indicated that if earnings continue at or above their present level it is more than probable that their programs will be enlarged somewhat. Only three roads are planning definitely to spend less than they spent in 1939. Taken as a whole, the budget figures given by these officers indicate an increase of slightly more than \$11,000,000 over the expenditures for 1939, which amounted to \$466,000,000, and which have been exceeded only once, in 1937, since 1931.

With only two exceptions, those roads that have completed their budgets said that rail renewal will constitute a major item in their programs for the year. This should not be interpreted to mean that these programs are unbalanced, for the increased activity for the year will not be confined to laying rail, but will also include

the renewal of ties, the installation of ballast, the strengthening of the shoulder of the roadbed, ditching and subsurface drainage, surfacing, weed destruction, building up rail ends, the maintenance of bridges, repairs to buildings, the painting of both bridges and buildings, the improvement of water facilities, the maintenance of signals and interlockings and many other of the items that combine to make up the requirements for roadway maintenance.

With one or two exceptions, the amount of rail to be laid by individual roads will be below the maximum mileage laid by several roads in 1939. Yet more roads expect to lay rail this year than last year, while with only a few exceptions those roads that laid only a small mileage last year are planning to lay more rail this year. In fact, the greater part of the increase in the amount of new rail to be laid will be made up by roads that did not lay any rail last year and by those that are increasing the small rail programs of 1939. Furthermore, there will be a sharp increase in the amount of released rail laid. In a number of instances the mileage of released rail to be laid on secondary lines exceeds the amount of new rail to be laid on primary lines and greatly exceeds the amount of released rail laid in 1939.

Track Surfacing Will Increase

It is obvious that an increase in the amount of rail laid, whether it be new or released rail, will be accompanied by an increase in the amount of ballast to be used for surfacing the rail. In this connection, not a few officers stated that they expect to do considerably more out-of-face surfacing, independent of rail renewals. In some cases it was indicated that this raise will require only enough material to fill out the ballast section, while other of these projects contemplate a complete renewal of the ballast. The increases in the ballast requirements for 1940, as given by the officers who participated in this study, ranged from 10 per cent to double the amount applied in 1939, with an indicated total increase of about 500,000 cu. yd. over the amount applied in 1939. That an increase in the amount of track to be surfaced is contemplated is also confirmed by the fact that more than 400 tie-tamping outfits, large and small, and an increase in the number of power jacks and power tampers are included in the 1940 budgets for work equipment.

Today, no maintenance officer would consider the application of ballast except on well-drained roadbed of ample width to support the ballast section. For this reason, it is to be expected that in connection with the increased rail-laying projects and the independent track-surfacing programs, there should be a corresponding increase in the amount of roadbed widening, ditching and other forms of drainage. This assumption is fully confirmed by the statements of numerous officers that considerable emphasis will be placed on these items during the year.

More Ties Will Be Renewed

Since 1930, tie renewals for the railways as a whole have been consistently below the current mortality rate, despite the large number of treated ties that were installed during the decade that closed with that year, so that, as the present decade closes, the accrued deficiency in tie renewals is estimated to aggregate more than 90,000,000 ties. Forward-looking engineers are also aware that the treated ties that were put in during the early part of the former decade are now entering their first cycle of renewals and that during the next few years this will have a marked influence in tie requirements. It is to be expected, therefore, that as earnings

remain at their present level or increase, tie renewals will also increase. This is also confirmed by the budgets for 1940, many of which include substantially larger allowances for ties.

Rail presents a situation with respect to deferred renewals quite similar to that presented by ties, with one important difference; while the deficiency in tie renewals is greatest in yards and sidings, the deficiency in rail renewals is relatively greater in main tracks. It is not implied that this deficiency has been allowed to reach the point where safety has yet been seriously impaired; yet it is recognized by all maintenance officers that as rail grows older it requires far more attention than new rail, particularly if the latter is of a larger section. Reflecting this situation, and despite the larger mileage of new rail to be laid this year, not a few of the 1940 budgets include substantial amounts for building up rail ends by welding. Few rail ends are built up today without the application of new, reformed or rebuilt joint bars, or of joint shims, so that there will be a corresponding demand for these incidental items.

Weed Destruction To Be Increased

Weed destruction involves a class of work that seldom affects the safety of trains or the flow of traffic. In general, uncut vegetation does not induce severe deterioration of the property, except in the ballast section. For these reasons, during the years of sharply reduced revenues, following the financial collapse of 1929, efforts to destroy or control weeds practically ceased on many roads and, particularly on branch lines, little was done along this line, except to keep the weeds out of the ballast and to comply with state laws relating to noxious weeds.

The revival of interest in weed destruction first became evident about three years ago and has been gaining somewhat in momentum since then, and although a relatively large number of weed-destroying units were purchased during these years, the budgets for 1940 include 100 of these units, compared with 65 such machines included in the 1939 budgets. In addition, a number of roads are expecting to employ chemical methods of weed destruction more extensively this year.

For a decade bridge maintenance has, in general, been held down to the minimum requirements for safety. Larger locomotives and increased speeds of trains, combined with the fact that the average age of steel bridges is approximately 10 years greater than it was at the beginning of the depression, are making it necessary for the roads to pay considerably more attention to these structures. For this reason, while the budgets for 1940 do not indicate any unusually large expenditures for bridge maintenance, many of the officers consulted stated that emphasis will be placed on the strengthening and painting of these structures. Several roads also reported that they contemplate the renewal of some relatively important bridges during the year. Other roads are planning an appreciable increase in the routine maintenance and replacement of pile and timber trestles. In preparation for this work, more than 300 power-operated portable wood-working, riveting, steel-cleaning and allied tools, together with 85 power plants for driving them, are included in the 1940 work-equipment budgets.

Probably no other item of maintenance, except weed destruction, has been neglected so completely during the last 10 years as that of buildings, for which reason a large amount of deferred maintenance has accrued with respect to both repairs and painting. Two or three roads reported that they had wiped out their deficiency in building maintenance during 1939; and one or two others expect to do so during the current year. Several were unwilling to admit any deferred maintenance

in buildings, but most of the remaining officers said that although they were increasing their building work moderately, they did not expect to catch up to any appreciable extent. It is of special interest in this connection, that the budgets include a larger number of buildings to be retired and replaced during 1940, than has been included since 1930. If the budget plans are carried out, there will be a large increase in the expenditures for maintaining and replacing water facilities. The majority of the officers furnishing information on this subject said that emphasis will be put on this important item.

How About Deferred Maintenance?

When requesting information concerning the maintenance budgets for 1940, the officers to whom the inquiries were addressed were asked whether their programs for the year contemplated the taking up of any appreciable amount of deferred maintenance in tracks, bridges, buildings, signals and water service. While a number of these officers said quite specifically that they do not admit that there is any deferred maintenance on their roads, except in buildings and painting, some of them qualified this statement by saying that any appreciable increase in traffic would necessitate a marked increase in the expenditures for maintaining tracks and bridges. Others said frankly that their roads have an appreciable amount of deferred maintenance, and that under present conditions they are doing little to overcome it, except in those items where safety is involved, or where greater losses might accrue by reason of further neglect. A few said that they are striving to take up as much of this deficiency as their appropriations will allow and that they expect to wipe it out in a few items during the year.

Railway construction has followed a consistently downward course since 1930, particularly with respect to those large projects that have characterized this activity for decades up to and including 1930, until in 1938 it reached an all time low. There was a slight upturn in 1939, however, made up principally of minor projects that could be financed out of current earnings. As a result of this long and almost complete cessation of construction activity, there is at present a highly suppressed need for a vast program of railway construction that will overshadow all of those that have gone before.

Construction Will Increase Slightly

With only a few exceptions, those roads that have completed their budgets expect to carry out some construction projects. None of the projects they listed are large individually but in the aggregate they represent a slight increase in construction expenditures, compared with 1939. As outlined by these roads, the projects will include the revision of yards and extensions to yard tracks, the installation of car retarders, the enlargement and improvement of water facilities, the extension and relocation of passing sidings, additional sidings, the replacement of steel bridges, the filling of timber trestles, revisions of alignment, primarily to reduce curvature, replacement of obsolete fuel stations, longer turntables, extensions to enginehouses, the replacement of stations, the installation of centralized traffic control, extensions to automatic signals, relocation of signals and renewals and revisions of interlockings. It is a matter of interest that a number of the roads that were affected severely by the drought late in 1939 are planning to spend appreciable sums to insure the dependability of their supplies.

With earnings remaining at a somewhat higher level than for a number of years, it may seem odd that with

consistently larger programs for maintenance, there is not a corresponding revival of construction activities. As a matter of fact, there is a corresponding increase in the minor construction projects, but not in the larger construction enterprises. The reasons for this are not far to seek, being found in the manner in which these two types of construction are financed. Maintenance costs and the expenditures for almost all minor construction come out of current earnings, for which reason the two activities usually rise and fall together. On the other hand, the cost of the larger projects, often involving the expenditure of millions of dollars, cannot be paid for out of current earnings, but must be financed by borrowing and paid for over a period of years by the sinking-fund method.

Obviously, in view of the uncertainties that face railway managements today, to which are added those in the industrial field as a whole, there is little incentive for them to make the large commitments that will be necessary to finance large construction until they can penetrate farther into the future than is possible at this time. These are the reasons why maintenance activities may increase greatly without any corresponding activity in large and important construction. In contrast, the revival of activity in connection with those projects that can be financed from current earnings should be proportionate to the increase in maintenance expenditures, and this relation in 1940 is indicated by the budgets under study.

One type of construction that has not been mentioned will be continued. This refers to grade separations and highway-crossing protection, both of which have been so prominent a feature of railway construction for several years. Beginning in 1936, as a result of federal appropriations amounting initially to \$200,000,000, an unprecedented amount of grade-crossing elimination and grade-crossing protection has been carried to completion year by year. The work for 1940 includes the same general classes of work as in former years.

Increased Signaling Programs

The railways will increase signaling programs during 1940 to meet the requirements of trains operated at higher speeds, to reduce unnecessary train delays and to reduce operating expenses involved in signals and interlockings. Expenditures for new automatic block signaling on approximately 200 miles of road are already authorized, and the total for the year should be at least 750 miles, representing expenditures well over \$3,000,000. Likewise, the installation of centralized traffic control on more than 200 miles of line is already authorized, involving in some instances the replacement of interlockings. In numerous instances manually-operated interlockings are to be replaced with power switch machines and signals to be controlled remotely. One road has a program for signaling additions totaling \$900,000, another road \$330,000, and a third \$409,000, while exact figures on some of the larger programs are not available as yet. In addition to the foregoing, one road contemplates the reconstruction of a classification yard and the installation of power switch machines with car retarders, while another road expects to install centralized traffic control to replace four interlockings and permit removal of 30 miles of third track. Automatically-controlled highway-railway crossing protection involving flood-light signals with or without gates will be installed at about 800 to 1,000 crossings during 1940, representing a total expenditure of \$2,400,000 to \$3,000,000. Several roads are entering upon extensive programs of

(Continued on page 448)

Dickerman Is Alco Chairman

Succeeded in presidency by D. W. Fraser, locomotive company's vice-president in charge of manufacturing



W. C. Dickerman
Chairman, American Locomotive Co.



D. W. Fraser
President, American Locomotive Co.

DUNCAN W. FRASER, vice-president in charge of manufacturing of the American Locomotive Company since 1920, was elected president, effective February 29, succeeding William C. Dickerman, who was elected chairman of the board of the company, effective the same date. The latter post has been vacant since the resignation of the late William H. Woodin in March, 1933, when he relinquished active control of the many industrial enterprises with which he was identified to become Secretary of the Treasury. Mr. Fraser is succeeded as vice-president by Robert B. McColl, whose career is summarized in the news columns of this issue.

Mr. Fraser has been connected during all of his business career with the American Locomotive Company or predecessor companies and has been concerned largely with the production branch of the enterprise. A quiet and reticent individual, he has exhibited a penchant for thoroughness and detail in directing the widespread and varied manufacturing activities of "Alco."

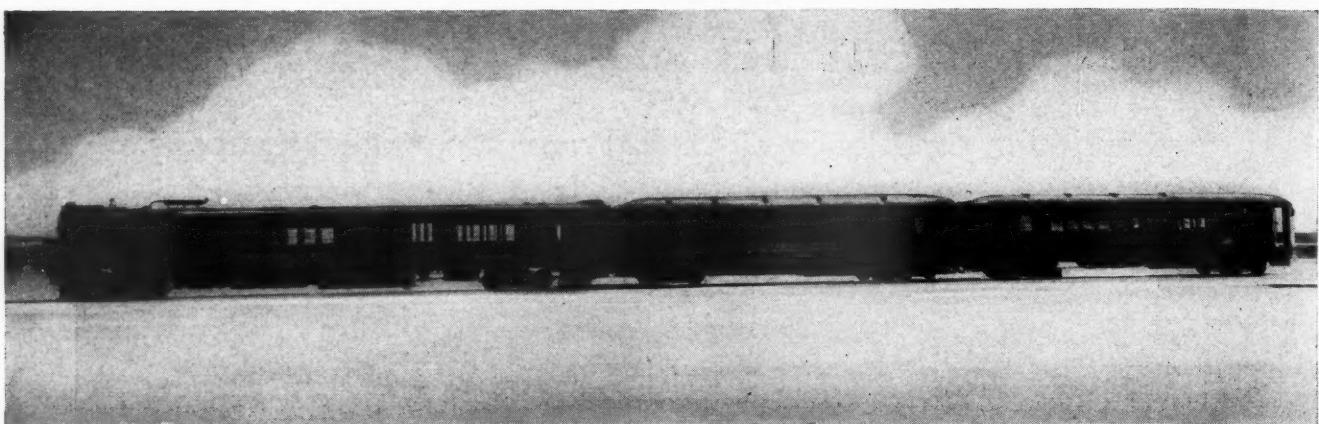
Mr. Fraser was born in Pictou County, Nova Scotia, and served his apprenticeship at the Rhode Island Locomotive Works (later acquired by the American Locomotive Company) and in 1904, subsequent to Alco's acquisition of the Montreal Locomotive Works, Ltd., he was transferred to the latter plant where he served in various capacities, becoming, successively, works manager and managing director of the company. In 1920, he was appointed vice-president in charge of manufacturing of the American Locomotive Company, with headquarters in New York; in 1924 he was elected also a director and, in 1929, a member of the executive com-

mittee. Mr. Fraser also holds official posts with several subsidiaries and affiliates of the American Locomotive Company; he is vice-president and a director of the Montreal Locomotive Works, Ltd., and a member of the executive committee and a director of the General Steel Castings Corporation and the Canada Iron Foundries, Ltd. He is also a member of the executive committee and a director of the Dominion Steel & Coal Corp., Ltd., and the Dominion Coal Company, Ltd., and a director of their affiliates.

Mr. Dickerman takes over the chairmanship of the American Locomotive Company after almost 11-years' service as its president. As was true of his predecessor, Mr. Woodin, Mr. Dickerman has spent the greater part of his career in the car manufacturing business and still retains high posts with the American Car & Foundry Co. group. After spending the early years of his career gaining experience in almost all branches of car manufacturing, he has concentrated subsequently on sales executive activities. Nevertheless, he has demonstrated a life-long interest in the technical aspects of the locomotive, backed by his education as an engineer, in his work in behalf of technical societies and in many appearances as a lecturer on the subject of railroad motive power.

Mr. Dickerman was born on December 12, 1874, at Bethlehem, Pa. Following his graduation from Lehigh University in 1896 he entered the employ of the Milton Car Works, of which his father was a partner and general manager, where he served successively in the audit-

(Continued on page 452)



Temiskaming & Northern Ontario Three-Car Rail Train

Temiskaming & Northern Ontario Diesel-Powered Rail Train

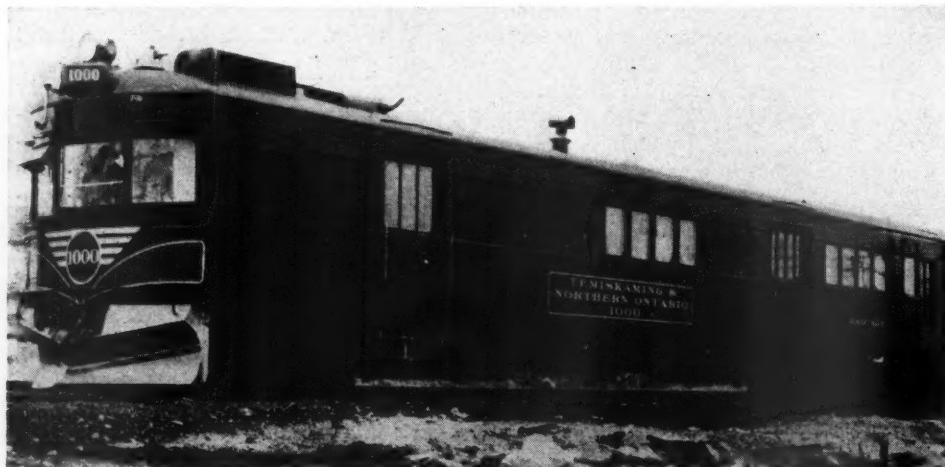
Original gasoline rail car equipped with 250-hp. Cummins Diesel engine and two trailers added—Fuel and lubrication cost 5.73 cents per mile for 30-day period

THE Temiskaming & Northern Ontario has recently placed in service, between Cochrane, Ont., and Porquis, a Diesel-electric passenger rail train consisting of combination baggage car and power unit, one second-class coach with a small baggage compartment, and one first-class coach.

The combination baggage car and power unit was converted from a Brill 73-ft. gas-electric combination power, baggage and passenger car, originally built in 1926. This unit had been in service almost continuously since that time, and the gasoline engine had become obsolete and unsatisfactory for service. In view of this, it was decided to replace the engine with a modern compression-ignition engine. To this end a Cummins six-cylinder, Model L Diesel engine, rated at 250 b. hp. at 1,000 r. p. m., adaptable to operation with the existing electrical equipment in the car, was selected. The new

engine, connected directly with a flexible coupling to the original generator, is mounted on a common steel bed plate 1 in. thick. This bed plate was then welded to the car center sills. The beds of the engine and generator were secured to the steel bed plate by means of fitted bolts, and the whole has formed an exceedingly rigid and vibration-free mounting. In addition to the above, and to prevent the vibration existent in the original car, a $\frac{3}{8}$ -in. cover plate was riveted from bolster to bolster on the bottom of the center sills.

The starting equipment for the engine is of the compressed-air type manufactured by the Briggs & Stratton Corporation, and is known as the Type 302,064 Model K. This equipment, supplied by the Cummins Diesel Engine Corporation, New York, consists of a small gas-engine-driven compressor charging a reservoir to a working pressure of 350 lb. per sq. in. The reservoir



Power Car No. 1,000 of the
T. & N. O. Rail Train—
The Power Unit Consists of
a Cummins 250-Hp. Diesel
Engine and Generator

can be charged up to full pressure in 15 minutes. By adopting this method of starting the engine a set of batteries was eliminated; it would take about eight hours to charge the batteries as against the 15 minutes for charging the reservoir with air. The engine is equipped with a compressed-air distributor.

The Westinghouse electrical equipment was given a thorough overhauling and no major replacements were required, as it was found to be in first-class condition.

Train lighting is furnished by a generator exciter at 30 volts, a set of lead-plate cells being carried underneath the power car and charged by the exciter.

Car Interiors Completely Rebuilt

In rebuilding the power car, all the passenger seats were removed and the entire space, except the power compartment, was made into a baggage and express car. To speed up the handling of baggage and express, two additional baggage doors were provided in the body of the car. A number of windows in the part formerly used as a passenger compartment were closed up.

The car roof and sides were insulated with 2-in. thick Salamander, then finished with $\frac{1}{8}$ -in. sheathing. The ceiling of the car is painted cream, the sides grey and the slatted floor red. In the engine compartment, the



Operator's Control Station

ceilings and side walls down to the window sills are painted grey, the window sills black; from the window sills to floor slate blue. The floor of the power compartment is covered with Marboleum. The engine and component parts are painted slate blue.

On the original car there was no diaphragm arrangement or spring-type couplers. The rebuilt cars are equipped with standard coach diaphragms and spring-type draft gear at the rear end.

The two trailers were originally two separate storage-battery cars built in 1924. After many years of service, owing to greatly increased traffic demands, these cars were removed from service and stored. In the spring of 1939, their use was considered as trailers, and after rebuilding, they have proved satisfactory. Originally these cars were built for double-end operation so that in the rebuilding program, new vestibules, complete with

standard buffing gear and diaphragms were required. It was necessary also to raise the car body $5\frac{1}{8}$ -in. in order to bring the platforms to the standard height.

In the case of the first-class coach, the entire end had to be rebuilt, as that end was a blind baggage compartment. Both cars are equipped with water raising sys-

General Dimensions of T. & N. O. Rail Train POWER CAR NO. 1000

Length over coupling faces, ft.-in.	75-10
Length over body, ft.	73
Width over posts, ft.-in.	9-10
Height from rail to roof, ft.-in.	12-2 $\frac{1}{2}$
Truck wheel base, front, ft.-in.	7-6
Truck wheel base, rear, ft.	7
Truck centers, ft.-in.	54-6
Light weight of car, front, lb.	69,500
Light weight of car, rear, lb.	46,900
Total weight, lb.	116,400
Baggage space, ft.-in.	55-4

TRAILER CARS NO. 1001 AND 1002

Length over coupling faces, ft.-in.	55 6
Length over body, ft.-in.	34 5 $\frac{1}{2}$
Width over posts, ft.-in.	8-9
Height from rail to roof, ft.-in.	12-9 $\frac{1}{2}$ /16
Truck wheel base, ft.-in.	5-6
Truck centers, ft.	35
Total weight of car No. 1001, lb.	55,400
Total weight of car No. 1002, lb.	57,300
Baggage space, car No. 1001, ft.-in.	13-6
Seating capacity, car No. 1001	44
Seating capacity, car No. 1002, main compartment	32
Seating capacity, car No. 1002, smoking compartment	20

WEIGHT AND LENGTH OF COMPLETE TRAIN

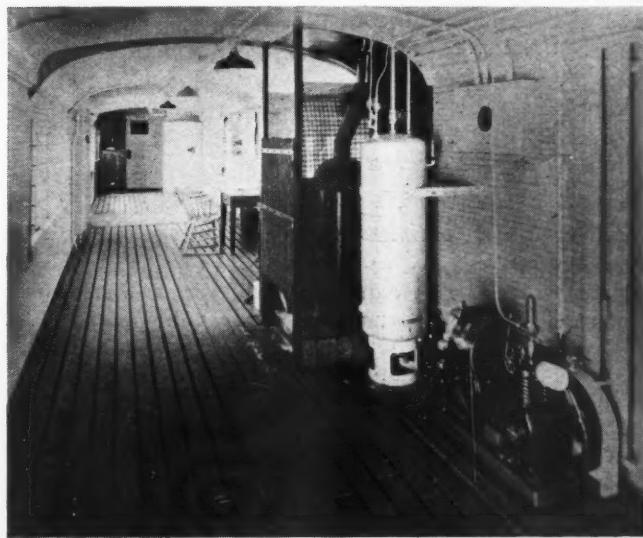
Total weight of train as a unit, lb.	229,100
Total length of train as a unit, ft.-in.	186-10

tems, and other modern toilet facilities. The two cars are heated by a hot-water heater supplying heat through fin-type tubing. All ceilings, walls, and floors were thoroughly insulated with Salamander.

Interior and Exterior Finish

The outside of the cars was finished in the T. & N. O. standard colors, namely, Pullman green, the center name panel in Castillian red with gold leaf striping and lettering, the grab handles and step risers in golden yellow. The roller-bearing trucks were painted black.

The inside finish, T. & N. O. standard, consists of cream ceilings; upper walls, light grey; window sills, black; walls below window sills, slate blue. The floor in the second-class main compartment is painted terra cotta



Interior of the Baggage Compartment Showing the Gasoline-Driven Air Compressor Used for Engine Starting

Operating Time Table for the Branch Over Which the Rail Train Runs

except for a 24-in. aisle strip of Marboleum. The toilets and end passageway floors are completely covered with Marboleum of the same color. The seats are upholstered in black Pantasote. The striping in both cars is in blue and red. The seats in the main compartment of the first-class coach are upholstered in blue plush; those in the smoking compartment in black Pantasote. The entire floor of this car is covered with Marboleum.

**Table II—Fuel and Lubrication Costs for Rebuilt Rail Car
—30-Day Period**

1,740 Imp. gal. fuel oil at 0.14 cents	\$243.60
36 Imp. gal. lubricating oil at 68 cents	24.48
13.14 Imp. gal. of gasoline, for air-compressor engine at 18½ cents	2.43
 Total	 \$270.51
Average cost per day	\$9.02
Average miles per day	157.28
Average cost of fuel, per mile	0.0516
Average cost of lubrication, per mile	0.0052
Average cost of gasoline, per mile	0.0005
Average cost of fuel and lubrication, per mile	0.0573
Cost per 1,000 lb. hauled, per mile	0.00025

The schedule on which this rail train operates is shown elsewhere in this article and a 30-day fuel and lubrication cost record is given in Table II.

During the Christmas season it was found necessary to handle, in addition to the two trailers, a fully loaded standard steel mail car of 167,340 lb. total weight, the car being equipped with six-wheel trucks. The rail train was able to handle the extra tonnage in a most satisfactory manner.

\$477,000,000 For Maintenance in 1940

(Continued from page 444)

auxiliary protection involving controls of signals by special detectors to check dragging equipment, floods, fires on wooden bridge structures, slides and falling rock. Expenditures for such work under way or to be completed in 1940 will be approximately \$750,000 or more.

In addition to the strictly new signaling projects, the railways must of necessity reconstruct and modernize much of the old signaling and interlocking, for two reasons, i. e., increased train speeds, and to meet the new requirements of the Interstate Commerce Commission. Based on braking-distance tests of high-speed heavy freight trains, the railways are lengthening the spacing between three-aspect signals to 8,000 to 9,000 ft.

For the past several years numerous roads have been meeting this new situation by temporary means, such as insuring safety by overlapping controls or controlling two or more signals to the Approach aspect in approach to one indicating Stop or Stop-and-Proceed. These practices reduce track capacity and introduce train delays and in some instances conflict with the thought behind some of the I. C. C. regulations. For these reasons, a large volume of signaling modernization has accumulated. Some roads are installing new signaling systems to replace those formerly in service; others are eliminating certain signals and are respacing the remainder, at the same time employing new control apparatus, systems of power supply, etc. Where blocks 8,000 to 9,000 ft. long are not practicable, additional fourth aspects are being provided. Several roads have programs of this nature, each requiring expenditures of \$100,000 or \$270,000.

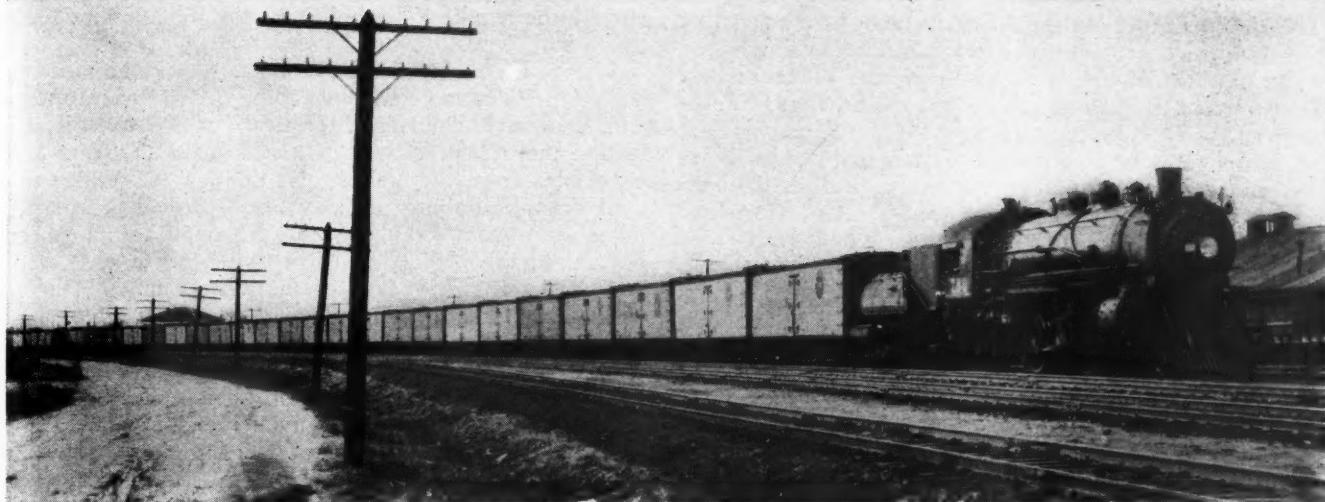
More Work Equipment

One feature of the maintenance programs that continues to be outstanding is the large amount of work equipment that is being purchased from year to year. Despite the large purchases of this equipment in 1939, and in previous years beginning with 1936, the budgets for 1940 contain a substantially larger number of units than were purchased in 1939. In other words, the railways now contemplate the purchase of more than 3,800 units of all types of equipment, compared with 3,547 units in 1939, with 1,376 units purchased in 1938 and with 3,310 units purchased in 1937.

In view of the various classes of work included in the maintenance budgets, it is to be expected that the types of equipment to be purchased will show a correspondingly wide variation. This assumption is borne out, for an examination of the budgets discloses the inclusion of 72 types of equipment, and experience insures that this number will be increased materially when the actual purchases are made. To mention only a few, the budgets include machines for laying rail, for surfacing track, for extending the life of rail, for grading, ditching and trenching, for weed control, for maintaining bridges and buildings, for handling materials, for transporting men and materials, and for a wide range of other work.

Is There Optimism

In making a similar survey of prospective maintenance activities a year ago, the officers to whom inquiries were addressed were asked whether the attitude of their roads was more optimistic or less so, with respect to resuming more normal maintenance and improvement programs in the near future. The replies given at that time indicated that, in general, there was a renewed spirit of optimism with respect to the near future, but that few of these officers were willing to make long-term predictions. Although this question was not asked directly this year, the tenor of the replies to the questions relating to the maintenance and improvement programs indicated quite clearly that this attitude of optimism has grown somewhat during the year. It was equally apparent, however, that these officers, having poignant memories of the events of the last 10 years, were inclined to be cautious in their expressions. On the whole, it is reasonable to conclude that the spirit of optimism has grown somewhat in the last year, and this is confirmed by the fact that the maintenance budgets, taken in the aggregate, show a slight increase over the relatively large expenditures last year.



Perishable Trains Roll North Throughout the Year from the Fertile Lower Rio Grande Valley

Fast Service for Southeast Texas

Southern Pacific aids in development of rich agricultural area by efficient handling of perishables

WITHIN the boundaries of a rough triangle between Houston, Galveston and Corpus Christi, plus its extension into the Lower Rio Grande Valley, the Southern Pacific operates approximately 1,300 miles of lines. Much of this mileage was originally constructed to serve the cattle ranches but the development of the area as a fertile agricultural district has changed the scope and character of its operations. Instead of the relatively slow service, operated more or less irregularly, and dependent upon the varying desires of the cattle men, an agricultural train service has been made necessary. This means the provision of especially fast schedules, icing services, and a close and careful check of the supply of empties for each district as the seasonal ripening of the crops demands.

The accompanying map of the area in question shows how the S. P. has apportioned its lines in Southeast Texas into four districts to meet the varying needs of the shippers. Not only are the crops varied in each of these districts, but, because of differing climatic conditions, the shipping seasons of the same crops vary as well. District No. 1 includes the lines between Houston on the northeast, San Antonio on the northwest and Beeville on the south. The first crop to ripen in this district is cabbage, for which the shipping season usually begins on April 15 and ends May 31. Onions move between April 20 and June 20, tomatoes between May 15 and June 20, potatoes from May 15 to July 1, while cantaloupes, green corn and watermelons move during June.

District No. 2 follows the line of the Texas-Mexican and portions of the S. P. between Corpus Christi and Laredo, and its products and their shipping seasons are as follows:

Beets	December 15	to	March 31
Broccoli	November 20	to	March 31
Cabbage	February 1	to	May 10
Carrots	December 15	to	March 31
Green Corn	June 1	to	June 30

Cucumbers	May 1	to	May 31
Onions	April 10	to	June 10
Spinach	December 10	to	March 15
Tomatoes	November 1	to	November 30
	also		
	May 1	to	May 31

District No. 3 extends from Beeville south, including the Corpus Christi territory, to the northern boundary of the Lower Rio Grande valley. The crops and shipping seasons in this area are as follows:

Green beans	April 15	to	May 15
Beets	April 1	to	May 15
Cabbage	March 1	to	May 15
Carrots	April 1	to	May 15
Green Corn	June 1	to	June 30
Cucumbers	May 1	to	May 31
Onions	April 20	to	June 10
Spinach	January 10	to	March 10
Tomatoes	May 10	to	June 10

The fourth district comprises the Lower Rio Grande valley, which, despite its relatively small area, is one of the richest and most fertile agricultural territories in the country. Its crops and shipping seasons are:

Green Beans	April 10	to	May 15
Beets	November 15	to	May 15
Broccoli	December 1	to	February 28
Cabbage	November 15	to	April 15
Carrots	November 15	to	May 15
Citrus Fruits	September 1	to	March 30
Green Corn	May 1	to	May 31
Potatoes	March 20	to	May 20
Tomatoes	November 1	to	December 10
	also		
	April 15	to	May 31

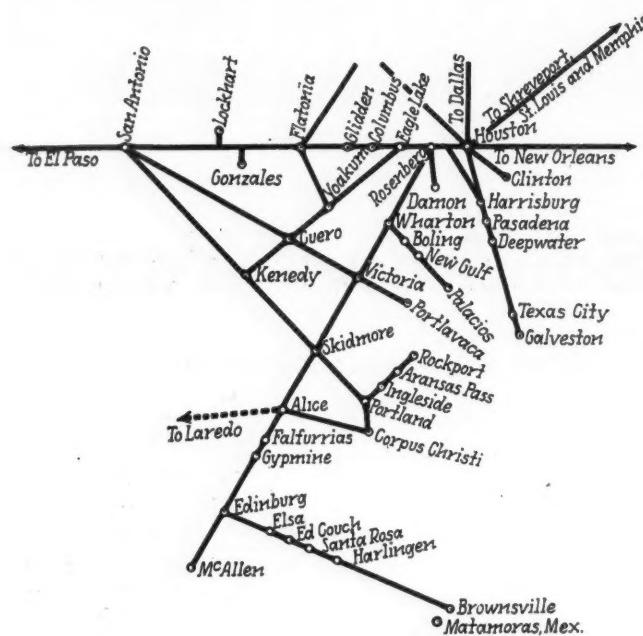
It will be observed that the perishable shipping season in this area lasts through most of the year. Such other agricultural products as butter, eggs, turkeys and pecans produce several hundred cars annually in these districts.

The Schedules

To aid in this intensive agricultural development, it was necessary for the Southern Pacific to establish fast and dependable perishable schedules to northern points.

The products of Southeast Texas move to all parts of the country, but the basic perishable schedules, and the route over which the bulk of the traffic moves, is via Houston and Shreveport, thence via the St. Louis Southwestern, a S. P. subsidiary through the Memphis and St. Louis gateways. The attached schematic map shows the most important shipping stations, as well as the concentration points where the cars are assembled after they have been picked up in the field by switching runs.

The perishable trains are made up at Edinburg, and fill out with perishables at Alice, where the Texas-Mexican cars are delivered to the S. P. Skidmore, Victoria and Wharton are other important points where



Map Showing the Principal Perishable Producing Areas on the Southern Pacific in South and Southeastern Texas

perishables are added to the trains. Of course, during periods of heavy loading, solid trains are made up at each of these points and dispatched north as special perishable blocks on the basic schedule.

Since the loading in the Lower Rio Grande Valley is done at night, the schedule calls for departure from Edinburg at 6 a. m., and for arrival at Shreveport, La., and delivery to the Cotton Belt at 4 p. m., the following day. The Cotton Belt in turn delivers these perishables to connections at the Memphis gateway early the following morning, thus providing 48 hr. service between Edinburg and Memphis, 902 miles. The Cotton Belt perishable train for the St. Louis gateway arrives at East St. Louis at 9 p. m., the following evening, or 63 hours for 1,160 miles, including stops for setting out and picking up at many terminals enroute.

The Lower Rio Grande Valley

One of the most productive agricultural areas in the country is the Lower Rio Grande Valley, comprising the three southernmost counties in the United States, an area about 23 miles wide and 75 miles long, containing 1,250,000 acres, of which 10 per cent is uncultivable because of over-alkalinity of the soil, 45 per cent is under cultivation, and the remainder is susceptible to cultivation. This area is bounded by the Gulf of Mexico on the east, by the international boundary along the Rio Grande on the south, by the Starr County oil fields on the west,

and by the southern fence-line of the million-acre King ranch on the north.

The S. P. extended its line from Falfurrias into the Valley in 1926, and completed construction into McAllen and Brownsville during 1927, since which time it has hauled more than 50,000 carloads of fresh fruits and vegetables from the Valley. Its lines in the Valley extend from Edinburg directly south to McAllen, 8.5 miles, and from Edinburg east, through the northern portion of the Valley, to Brownsville, 63 miles. With approximately 25 per cent of the railway mileage in the Valley, the S. P. handles 25 per cent of the outbound tonnage.

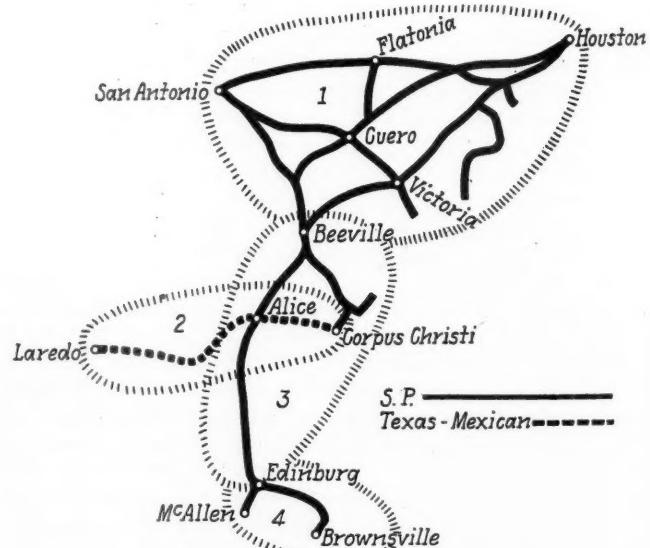
Citrus fruits represent the largest individual crop, somewhat more than eight million trees producing 30,000 or more carloads annually, divided 83 per cent grape fruit and 17 per cent oranges. The competition for this business between various agencies of transportation is keen, particularly since the government spent several million dollars in dredging a ship channel from Brownsville to the Gulf. Even so, water competition remains relatively negligible. The following distribution was made of last year's citrus crop:

Railway shipments	41.5 per cent
Truck shipments	14.1 " "
Express shipments	1.3 " "
Boat shipments	0.5 " "
To tourists	0.3 " "
To canning plants	42.2 " "

Of course, the railways eventually obtain their share of the shipments of canned fruit and juices from the canning plants.

Valley Operations

The problems involved in the operations in the Lower Rio Grande Valley are approximately similar to those in the other growing districts. The Valley operations



How the Southern Pacific Perishable Zones in Texas Are Divided

center at Edinburg, in the northwestern corner of the district. The problem of car supply requires careful attention, and there is necessarily a cross-haul of empty cars into and out of the Valley, for there is little or no movement in refrigerator cars southbound and no loading for box cars northbound. The supply of empties is determined in advance of the shipping season by careful crop estimates. During the heavy shipping seasons, a

(Continued on page 452)



Boston & Maine Fêtes 50-Year Commuters

Presentation dinner arouses widespread public interest in road and its old-timers

THE Boston & Maine invited 67 active commuters who have traveled on its suburban trains each business day for 50 years or more to a dinner in the Hotel Manager, Boston, Mass., on February 5 and presented each with a dainty lapel-pin of solid gold carrying the inscription "Fifty - Year Commuter — Boston &

Maine Railroad." The event brought forth a large and sympathetic response from the press and radio, and from the commuters themselves a flood of letters which indicated a sincere and serious appreciation of the recognition which the railroad bestowed.

The day after the dinner, a multi-column "story" appeared on the front page of every Boston metropolitan daily newspaper (all of the Boston papers had reporters and photographers at the dinner), while for several weeks thereafter local papers devoted preferred positions to those commuter-citizens residing in the particular communities they serve. Several large papers also carried editorials and one published an engaging cartoon poking amiable fun at the foibles of commuters. Radio news commentators as well saluted the old-timers and

the B. & M., and Fred Waring praised the event in the notable "good news" portion of his coast-to-coast broadcast. In all the "publicity" there appears not to have been one scoffing or critical note; all media agreed that the railroad made a generous gesture and that commuters are pretty interesting and important people.

How did the idea originate? Well, the Boston & Maine has been casting a watchful eye on the recent rise of bus and automobile competition for commuters traffic with the increase of good highways and down-town parking lots. The road has been running considerable advertising for the past year with such messages to wives left auto-less all-day by husbands who drive to work as "Did You Marry a Car Hog?" and "Aren't You as Good as Mrs. Smith?" But it was believed that the public should be acquainted still further with the importance of railroad suburban service and the desire of the B. & M. to hold and increase commuter patronage. Then someone remarked how proud his dad was of his commuting record and—the idea was born of appealing to this feeling of satisfaction in a long-maintained habit.

About three months ago, conductors and station agents were asked to submit the names of all 25-year commuters known to them; more than 135 names were sent in, of which 30 were 50-year patrons. In view of the size of these groups, it was decided to limit the honors to half-century patrons and newspapers carried articles asking additional 50-year men to "give themselves up." For weeks those who had been overlooked accosted agents and conductors, seeking to "get on the list," and

President E. S. French
Entertained the Two
Lady-Commuters

Left to right around the table: G. A. Parker, L. F. Whittemore (asst. to president), H. B. Hastings; Mr. French, Miss A. F. Wilder and Miss M. L. Besse



after the search was concluded, the Boston & Maine had a list of 67 active commuters who had riding-records of 50 years "daily except Sunday." All except a few who were ill accepted the invitation to the dinner.

It was a democratic occasion; there was no head table. At each of the 15 floor tables a B. & M. officer and a conductor or agent with 50 years' service were seated with the old-timers; President E. S. French dined with the two lady commuters. Each table was named for a B. & M. "titled" train and was decorated by a lighted railroad lantern whose lamp-oil odor made the guests feel at home. On the walls were affixed flags, B. & M. station posters and rear-end markers, lighted. Everybody's name was printed on the gold-leaved menus which appeared at each plate and he could see his antics reproduced in brief cartoons (like the ones shown herewith) which lined the margins. And each commuter received a photograph taken of the dinner, and corsages were presented to the ladies.

Gerritt Fort, executive assistant, delivered a brief address of welcome, to which a bank president who has ridden B. & M. since 1885, and Passenger Conductor C. H. Carroll replied. The latter, in the course of his remarks, pointed out that President French's first railroad job during school vacation in 1896 was to carry a can of drinking water through the cars—the contents of which he offered to passengers in two "very sanitary" glasses. He then presented the can, with its affiliated hardware to its former "operator." Following this, five secretarial employees presented the gold-pins to the commuters and the dinner ended promptly at 8:20 p. m.—because everyone had to catch the 7:45 next morning.

The aftermath? Lots of goodwill and a telephone call from a man who exclaimed, "You'd better have one of those pins ready. I'll be a 50-year man in just three weeks!" The B. & M. has—for him and all the clan when they come of age.

Fast Service For Southeast Texas

(Continued from page 450)

reserve of empty refrigerator cars is kept in Edinburg yards, so that unlooked-for and emergency requirements may be taken care of without delay. The problem of procuring and holding experienced employees at a spot so far removed from the centers of population is simplified by reason of the fact that the climate is such that one crop or another is ripening and ready to ship throughout the year, so that fairly steady employment is possible.

There are 13 loading points on the S. P., of which 9 are local to that railway. The largest of these is Elsa, which, with annual loadings of 2,500 cars or more, is the biggest shipping point in the Valley. Other important local loading points on the S. P. are Edcouch, Santa Rosa and Los Fresnos.

The nightly requirements for these loading points are telephoned to Edinburg, where, after the empties from the north are thoroughly cleaned and inspected, they are distributed to the loading points by two trains daily, each of which makes the round trip between Edinburg and Brownsville, setting out empties eastbound and picking up loads westbound. The needs of the eight-mile McAllen line are taken care of in switching service out of Edinburg. During heavy seasons, additional trains are frequently operated, but no stand-by power is kept at Edinburg, since the need for additional power can

always be determined sufficiently in advance to send the locomotives down from the division point at Victoria, 211 miles north of Edinburg.

When the loads are brought in to Edinburg during the night, they are consolidated into trains in two classifications, one for the north Texas gateways and the other for the Shreveport gateway, to simplify the switching at Victoria, where the routes to these two gateways diverge. The northbound perishable trains out of Edinburg are then filled out with empty box cars, and leave that terminal at 6 a. m., in accordance with the schedule previously outlined. The record season for the S. P. so far was in 1936-37, when 3,571 cars of citrus fruit, and 4,865 cars of vegetables were handled out of the Valley.

The location of the other concentration points for the agricultural districts north of the Valley makes it possible to operate these perishable blocks at full tonnage to a large extent. At Victoria for example, where the Valley trains set out cars for the north Texas gateway, a sufficient supply of loads is available at most seasons of the year to fill out to maximum tonnage. At Houston the perishable freight from all the districts of Southeastern Texas is available for operating the trains from Houston to Shreveport with maximum tonnage. In general, in view of climatic conditions in Southeastern Texas and particularly the Lower Rio Grande Valley, the operations can be organized efficiently on the basis of a fairly constant flow of traffic throughout the year.

Dickerman Is Alco Chairman

(Continued from page 445)

ing, purchasing and engineering departments. In 1899, on formation of the American Car & Foundry Co., of which the Milton Car Works became a part, he was appointed assistant manager of the Milton (Pa.) district. Transferred to New York in 1900, he was appointed sales agent, and later general sales agent, which position he held until 1905 when he was appointed vice-president. During the World War, Mr. Dickerman was in charge of the American Car & Foundry Co. division which successfully executed munition contracts on behalf of the United States and the Allied nations, and in 1919 he became vice-president in charge of all operations of the company. In 1929 he was elected president of the American Locomotive Company.

Mr. Dickerman will continue as president and director, American Locomotive Sales Corporation, an affiliated company. He is also a member of the executive committee and director of the American Car & Foundry Co., American Car & Foundry Export Co., American Car & Foundry Securities Corp.; Carter Carburetor Company, General Steel Castings Corporation, J. G. Brill Company and Montreal Locomotive Works, Ltd., and chairman of the board of directors and chairman, executive committee, Transamerican Construction Company. He is a director, American Canadian Properties Corporation, several American Car & Foundry affiliates, Flannery Bolt Company, Shippers Car Line Corporation and the Superheater Company. Mr. Dickerman's many posts in civic and academic fields include president and member of executive committee, The Guild of Brackett Lecturers, Princeton University, and trustee, Lehigh University, where he recently received the honorary degree of Doctor of Engineering.

Pressure on S. 2009 Conferencees

Harrington has 250 signatures of House members on petition calling for retention of "labor protection" amendment; forwarder regulation comes up again

WASHINGTON, D. C.

REPRESENTATIVE Harrington, Democrat of Iowa and sponsor at the behest of the Brotherhood of Railroad Trainmen of S. 2009's so-called Harrington "labor-protection" amendment, this week planned to present to the conference committee on that omnibus transportation bill a petition signed by more than 250 members of the House, calling upon the conferees either to retain the amendment unchanged in their conference report or report a disagreement on it so the provision will come up for a separate vote. Among other developments of the past week was the revelation of a changed attitude on the part of the Association of American Railroads board of directors with respect to the regulation of forwarders—they now want such regulatory provisions in the bill; and the draft of a new Part IV to cover the regulation of forwarders, submitted to Conferee Lea, chairman of the House committee on interstate and foreign commerce, by Chairman Eastman of the Interstate Commerce Commission.

Mr. Eastman's letter to Chairman Lea said that the forwarder provisions had been set up as Part IV "on the theory that the form of that bill which was adopted by the House of Representatives will be the form used in the final legislation." In this connection, it is now generally recognized that the conference report will be based on the uncodified House version, which takes the form of amendments to the Interstate Commerce Act including a new Part III for the regulation of water carriers; and thus the committee-of-six will not get the "codified" act which it wanted and which is before the conferees in the form of the Senate bill. While there has been no official announcement of the dropping of codification, conferees say privately that it is out; and reports of their work have indicated that they are perfecting the House version. They have said that they have disposed of amendments to Parts I and II (the Motor Carrier Act), except for a few "choice" matters which were laid aside; and are now working on Part III, the water-carrier provisions.

Provisions Passed Over

Among the matters passed over, it is understood, are the through-routes provisions; the Harrington amendment; the so-called Miller-Wadsworth amendment which would direct the I. C. C. to permit any carrier to reduce rates so long as the resultant charge remained compensatory after taking into consideration all elements of cost, including overhead; and the so-called Jones amendment to require the I. C. C. to prescribe export rates on agricultural products on the same relative basis as it permits the railroads to publish export rates on manufactured articles. The through-routes provisions, favored by the short lines but opposed by many of the larger roads, are in the Senate version; while the Harrington and Jones amendments were added to the House version when it was before the committee of the whole House. The Miller-Wadsworth amendment is in both versions.

The aforementioned petition on which Representative

Harrington has more than 250 signatures of his colleagues would seem to foreshadow a formidable House opposition to any conference report which undertook to eliminate the Harrington amendment. It is, of course, quite likely that some of the signers would not persevere in an attempt to follow through to a kill of the conference report; but the save-the-amendment forces could take a bit of such wavering, because 218 members constitute a majority of the House. Meanwhile Mr. Harrington said he has not closed the books, but is gathering additional signatures—a work in which he is understood to have the assistance of B. of R. T. representatives assigned to Capitol Hill. The petition will not in any way bind the conference committee; but Mr. Harrington anticipates that, for the House conferees at least, it should be "news from home" indicating an adherence to the position taken when the amendment was adopted during consideration of the bill by the committee of the whole House.

Rail Labor and the Harrington Amendment

No public position on the Harrington amendment has yet been taken by the Railway Labor Executives' Association, which has been understood to be satisfied generally with the Senate version's "labor-protection" provisions, authorizing the I. C. C. to condition its approval of consolidations upon the inclusion of equitable provisions to care for employees involved. There have been rumors during the past couple of weeks that railroad labor organizations, other than the B. of R. T., were about to take a Harrington-amendment stand; but such rumors have been followed recently by other reports to the effect that leaders of such organizations are "weakening," and coming forward with suggestions that the amendment might be retained with some modifications.

The "ethics" of railway labor's working for the Harrington amendment after having entered the so-called Washington Agreement with railway management was discussed in the House on March 1 by Representative Alexander, Republican of Minnesota. He saw no breaking of faith, and cited in support of that finding the fact that "for almost 50 years the railroad labor organizations have been entering into contracts with the various railroad managements; for almost as long they have been coming before the Congress and the various state legislatures asking for legislation affecting their employment." Continuing, Mr. Alexander wanted his colleagues to understand that "in none of these agreements, including the so-called Washington jobs agreement, is there any restriction on either party from exercising his rights as a citizen to endeavor to have enacted legislation which will be beneficial to those he represent."

"Those speaking for the opponents of the Harrington amendment," Mr. Alexander went on, "seem to have forgotten that Congress enacted the so-called eight-hour-day law at a time when practically every one of these railroad labor organizations had contracts with the carriers providing for a ten- or twelve-hour day; and few, if any, had contracts providing for an eight-hour day. Those of you

who were in Congress at that time will recall that there was no contention then that the representatives of railroad labor were breaking faith and that the eight-hour law should not be passed because of those agreements providing for ten- and twelve-hour days.

"It is well-known by most, if not all, of you that the railroad brotherhoods are, from year to year, having introduced in their state legislatures bills which give greater advantage to their membership than the contracts which they have entered into with the managements. In more than half of the states there are full-crew laws of one type or another which were enacted providing for additional men on certain trains. These laws were enacted at a time when the railroad labor organizations had contracts with many railroads providing that a lesser number of men would be required on those particular trains."

Sees 20 Per Cent Savings Without Disturbing Labor

After quotations from the writings of President A. F. Whitney of the B. of R. T. and further talk of the Washington agreement, Mr. Alexander continued as follows: "If the Washington jobs agreement is workable and enforceable, why is not the Harrington amendment? They differ only in degree . . . President Daniel Willard of the B. & O. Railroad, and others, have said that 80 per cent of the savings from railroad consolidations come from savings in labor costs. Therefore, consolidations entered into under a law containing the provisions of the Harrington amendment will permit an immediate saving of 20 per cent of the present cost of operation which is derived from sources other than labor. As the number of those employed upon the railroads at the time of consolidation is reduced from seven to ten per cent, as it is, each year by men resigning, going on retirement, and so forth, the salary paid to that seven to ten per cent will then divert to the holders of railroad securities. . . . The solvency of the Railroad Retirement Act will not be jeopardized by having removed a large part of the payrolls that sustain the act, thereby upsetting the basis upon which was based the present tax rate to provide for railroad retirement insurance. . . ."

Among Representative Alexander's other activities of the past week was his complaint during debate on the War Department civil functions appropriation bill, over the failure of Congress to appropriate the \$22,809,000 which he said was necessary to extend the Mississippi river's nine-foot channel above the falls of St. Anthony in Minneapolis, Minn. He attributed Minnesota's unsatisfactory economic situation to the lack of that waterway development, and went on to talk about freight rates, exclaiming "No wonder we can not sell our surplus crops or have nothing left after paying the freight rate on what we do sell."

The above-mentioned change of front by the A. A. R. board of directors, which now favors forwarder regulation in S. 2009, first became known to the press on Capitol Hill, the Association having made no announcement following the board's February 23 meeting at which the action was taken. This departure from the previous A. A. R. stand in favor of deferring the matter is understood to have prompted one of the conferees to write a critical letter to Judge R. V. Fletcher, A. A. R. vice-president and general counsel. The House version of the bill brings forwarders in by adding them to the list of common carriers subject to Part I, while the Senate committee deferred the matter, pending the outcome of its sub-committee's investigation of railroad methods of handling forwarder, l. c. l. and express traffic, which is called for in Senate Resolution 146. Senator Wheeler,

speaking only for himself, said this week that he would not be disposed at this time to undertake to incorporate any elaborate provision for the regulation of forwarders in S. 2009, and Senator Reed said that he stood on the promise made to the Senate that the aforementioned investigation would be made, and the matter then handled on the basis of such investigation.

Eastman Drafts Forwarder Provisions

Nevertheless the Eastman draft of a Part IV for the regulation of forwarders was before the conferees—submitted by the I. C. C. chairman in response to a request from Conferee Lea. Mr. Eastman highlighted his proposed provisions in a letter of transmittal, pointing out that they "follow very closely in wording similar provisions in Part II or the proposed Part III." He emphasized the fact that he was "personally responsible" for the draft, which had not been approved by the commission or its legislative committee; in fact, Mr. Eastman feels sure that "there are some members, and perhaps a majority, who would not approve it."

The former co-ordinator anticipated that his proposals "will probably seem to forwarding companies unduly restrictive in certain respects," and thus he thought it desirable to call attention to what he believed to be "the principal features which may be controversial." Listed first in the latter connection is the provision whereby a "forwarding carrier" could not at the same time be a carrier by railroad, a motor carrier, a water carrier, or an air carrier, "or a person which on the date of enactment of Part IV is subject to Part I as an express company." Also, railroads and their affiliates would be required to divest themselves of control of forwarders by January 1, 1941, after which date it would be unlawful for a carrier "of any other description" to continue to hold "any interest whatsoever" in a forwarding carrier. "The control of certain forwarding companies by railroads and motor carriers," Mr. Eastman said, "has been one of the most objectionable and troublesome features of forwarding operations."

Next there would be a provision confining forwarders to the use of instrumentalities or services of common carriers—they "should not be permitted to utilize those of contract carriers." The I. C. C. chairman recognized that his suggestion to leave present express companies under Part I "is to some extent illogical and anomalous" in view of the fact that the definition of "forwarding carrier" is broad enough to include express companies. Nevertheless the idea of being a bit illogical seemed to Mr. Eastman "the best way for the moment of dealing with a practical and very difficult problem." "Later on, no doubt," he added, "a better way of dealing with it will be found."

There would be a "grandfather" date of August 1, 1937, with forwarders then in operation relieved of any requirement to make a showing of public convenience and necessity to obtain certificates. That date was selected, Chairman Eastman explained, because it came just after the commission's decision finding that forwarders are not subject to the Act as it now stands. "Following that decision," the letter continues, "many alleged forwarding companies were created, particularly by or in behalf of motor carriers and for the apparent purpose of enabling concessions in rates to be made to shippers when necessary to get business. . . . In view of these circumstances, it seems desirable that forwarding carriers created after the date specified should be obliged to make full proof of public convenience and necessity."

The "most controversial provisions," Mr. Eastman

thinks, will probably be the aforementioned ones confining forwarders to the utilization of instrumentalities and services of common carriers, and another stipulating that such utilization shall be only at regularly published tariff rates. As the I. C. C. chairman understands it, the forwarders take the position that they should be free to make contract rates with the carriers; but he thinks that such contentions "can be given appropriate consideration by the commission" in the exercise of its regulatory authority. Another section would permit forwarders to establish through routes and joint rates with each other, but such arrangements between forwarders and other carriers "do not seem to me to be logical or appropriate."

Meanwhile various resolutions on S. 2009, particularly the Harrington amendment, continued to appear in appendices to issues of the Congressional Record. Representative Harrington remains the leading "extender of remarks" in that connection. In the body of the Record's March 4 issue Chairman Bailey of the Senate committee on commerce inserted the joint letter which he recently received from Secretary of Agriculture Wallace, Secretary of War Woodring and Chairman Land of the Maritime Commission, along with the reply by E. E. Norris, president of the Southern and B. M. Jewell, president of the Railway Employees Department, American Federation of Labor, two members of President Roosevelt's committee-of-six. These letters were reviewed in last week's issue, page 413. In offering the correspondence, Senator Bailey said that the Wallace-Woodring-Land letter "by some means got into the press;" he "did not give it out." He asked to have the original letter and the Norris-Jewell answer printed in the record "for the information of Senators, with a view to the hour when the conference report shall come before the Senate"—all "without intending to influence the conferees in any way."

Wage Hearings Nearing Conclusion

WASHINGTON, D. C.

HEARINGS before the Railroad Industry Committee drew to a close this week as organized railroad labor and the short lines completed their presentations and the committee prepared to adjourn for a period of ten days, at which time oral argument will be heard and an attempt made to decide the issues involved. The Railroad Industry Committee of the Wage and Hour Division, Department of Labor, is in the third week of hearings to determine its recommendations as to the future minimum wages on the railroads (up to a possible level of 40 cents an hour) which "will not substantially curtail employment."

The additional witnesses for the brotherhoods involved took the position that the railroads are able to pay a 40-cent minimum and introduced exhibits designed to show that the railroad industry is relatively better off than many industries which are now paying a minimum of 40 cents an hour. On the other hand, the short lines produced several witnesses who testified that if the 40-cent minimum goes into effect, they will have to abandon their properties.

Kaplan Testifies for Labor

David Kaplan, research director for the International Association of Machinists, occupied the witness stand on February 28 and 29. Mr. Kaplan introduced several

exhibits designed to show that many industries have fared worse during the recent depression than have the railroads. He was questioned extensively by members of the committee and by counsel for the carriers.

Also, at the February 29 session a brief appearance was made on behalf of the National Brotherhood of Red Caps by its secretary-treasurer, J. L. Yancy, who told the committee that the members of his organization were greatly in need of the 40-cent an hour minimum. He was queried regarding the status of the red caps, and after extensive questioning by the committee, it was decided that the committee could do nothing about the red caps until their status has been determined as a result of litigation which is being carried on in several federal courts throughout the country.

Jewell Cites *Railway Age*

B. M. Jewell, president of the Railway Employees Department of the American Federation of Labor, testified briefly at the March 1 meeting of the committee. Mr. Jewell attempted to show that general business conditions are much better this year and that prospects are much better than last year as far as the railway industry is concerned. He read into the record a short quotation from the *Railway Age* of January 6, 1940, page 1. The quotation follows:

"The *Railway Age* forecasted a year ago a net operating income in 1939 of \$600,000,000 or 60 per cent more than in 1938. That is one forecast that did not go wrong. For the amount actually earned apparently was almost exactly what was predicted."

He then read one additional quotation from page 7 of the same issue which said that "On economic evidence alone, it certainly does not seem over optimistic to hazard a forecast that the rise will exceed 1936 carloadings in 1940 and make net railway operating income in the vicinity of 700 million dollars."

The concluding witness for labor was George E. Brown, international vice-president of the Hotel and Restaurant Employees, who produced several exhibits to show that the employment in his field fluctuated directly with the number of passengers riding and that it was impossible to mechanize these employees and thus reduce the number if a 40-cent minimum is decided upon by the committee.

Short Lines Open Case

The short lines opened their part of the case on March 2 after Edward B. Mittleman, economist for the Wages and Hour Administration, had presented a study of the short line industry, with an opening statement by C. A. Miller, vice-president and general counsel of the American Short Line Railroad Association. Mr. Miller told the committee that he was speaking for the class II, III, and electric lines who were members of his association.

As in the case of the Class I carriers, Mr. Miller told the committee that the increase in the minimum wage rate will fall most heavily upon the Class II and Class III carriers in the south and southwest. Also, according to Mr. Miller, the short lines are taking the position that employment is curtailed when an employee is permitted to work fewer hours per day, per week, or per month, just the same as if he were not permitted to work at all.

The first witness for the short lines was J. M. Hood, president of the American Short Line Railroad Association, who pointed out to the committee that during the last 19 years some 249 short lines have been aban-

doned. Further, he said, 82 per cent of these abandonments had been caused by motor carrier competition.

Hood Discusses S. 2009

Discussing the potential relief for the short lines which may be derived from S. 2009, the omnibus transportation bill which is now pending in conference, Mr. Hood had the following comment to make:

"It appears quite likely that water carriers will be subjected to the regulation of the I. C. C. and that will have some beneficial effect, but so far as the short lines are concerned it will be very largely negligible or intangible. The only provision in that legislation that is of direct importance to the short line railroads is Section 27 of the Bill as passed by the Senate, which would enable the I. C. C. to establish such through routes, including short lines, as it finds to be in the public interest. That provision is being strongly opposed by some of the Class I carriers, and we cannot today forecast whether or not it will be included in the bill when finally passed by the Congress, if one is passed. Generally speaking, other than these two features, I see nothing in that legislation which will enable the short line railroads to improve their financial condition. Senator Wheeler has said that this legislation is not a panacea for the ills of the railroads. With that statement I am in agreement."

The next witness was E. A. Chavannes, who has been temporarily employed by the short lines as a statistician to prepare exhibits for the case. Mr. Chavannes testified that an increase in the minimum wage to 40 cents

an hour would cost 59 per cent of the short lines \$1,382,-718 a year. To increase the wage to 31 cents an hour would mean an increase of \$96,156, he said. This figure for 59 per cent of the lines is due to the fact that only this number answered the questionnaire sent out by the short line association.

There then followed the testimony of three short line railroad operators, Frank G. Hamblin, vice-president and general manager of the Greenville & Northern; D. W. Thomas, president and general manager of the Chesapeake Western; and H. B. Edwards, president and general manager of the Atlantic & East Carolina.

Increase Will Mean Abandonment

The substance of their testimony was that if the 40-cent minimum becomes effective, they will have to abandon the operation of their lines. All said that they had cut expenses to the minimum and could not stand any further increase. Frank L. Mulholland, counsel for the labor groups, attempted to show by questioning that there was no future for roads of this calibre and that it would not be fair to judge the standard for the whole industry by these three roads.

Mr. Edwards, in describing conditions on his line, said that he had leased it from the State of North Carolina which had previously been unable to operate it at a profit. Asked whether or not he had any highway competition, he said that he did, pointing out that in many places a state highway is virtually on his right-of-way, both pieces of property being owned by the state.

* * * *



Courtesy Official Information Bureau of Switzerland

Through Express of the Electrified St. Gotthard Line Passes Over the Planotondo Viaduct Near Giornico, Switzerland, South of the Famous St. Gotthard Bore



The International Amphitheatre, Chicago, Where a Large Exhibit of Equipment and Materials Will Be Held on March 11-14

New and Improved Products of the Manufacturers

Switch Stand With Facing-Point Lock

THE Union Switch & Signal Company, Swissvale, Pa., has announced improved types of manually-operated switch stands, the T-20 and T-21 locking the switch in the normal position and providing a latching point detector; and the S-20 and S-21, which not only perform the same functions as the T-20 and T-21, but also provide for unlocking of the switch by a trailing train. Both provide protection equivalent to that of an interlocked switch. In other words, if the operating rod is broken or disconnected, the switch is still safe for train operation. A latching point-detector operates on a different principle from that of a simple switch circuit controller. If a switch is improperly trailed and the points later return to normal position, a simple controller will be closed, whereas a latching point-detector, once opened, stays open to hold signals at the most restrictive aspect until the switch is inspected and the damage corrected.

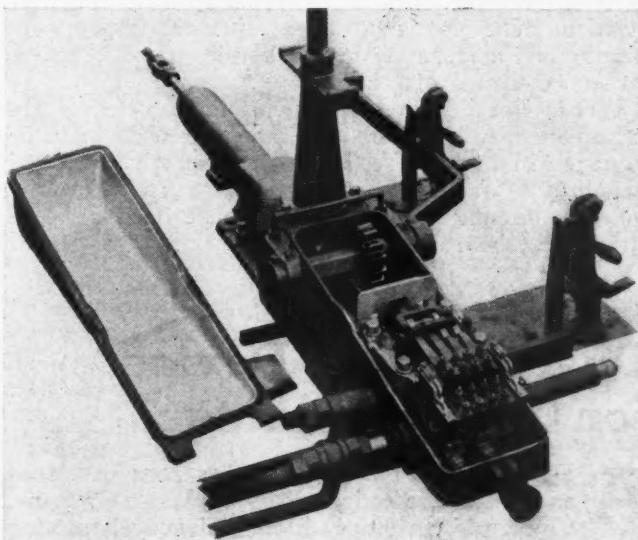
The new machine, as adapted for switches which are operated at all times by hand, is known as the T-20, while the S-20 is arranged for a combination of manual and spring-buffer operation. Both machines can be furnished with a built-in target operating mechanism and with this addition the machines are designated as the T-21 and S-21 respectively. The target mounting is so arranged that if the target is knocked off by dragging equipment the locking mechanism is not damaged.

The new switch and lock machines perform the same functions as their predecessors the T-10 and T-11 and S-2 and S-3, but the new design includes some changes in the method of operation, permits interchange of parts, is easier to operate and has been strengthened throughout to withstand more severe service imposed by increased traffic and higher train speeds.

The effort required to operate a switch by hand has been reduced by utilizing anti-friction design of the switch throwing mechanism. When operated manually, the lock rods and bars are effective to lock the switch

in the normal position. The new design permits interchangeability of parts so that any one machine can be applied for either left-hand or right-hand switch layouts, and the switch operating crank in any instance points toward the heel of the switch. Maximum protection of the internal mechanism and controllers against damage by dragging equipment has been accomplished by a new design of the case and a heavy one-piece cover. This cover is equipped with jute packing and is removably attached by a "screw-down" hasp at one end and an adjustable hinge at the other end.

An installation of the Style S-20 and S-21 includes equipment and a connection to the mid-section of the length of the switch point, so that as a train starts to trail through, the plunger is withdrawn automatically from the lock rod and the train can pass on through the switch. After the points close under the buffer spring pressure, the plunger again returns to its normal position



Style S-21 Switch Stand with Facing-Point Lock, Equipped with Target

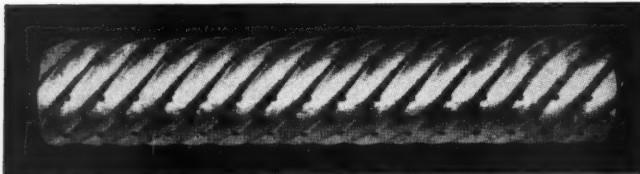
through the lock rod. The switch is, therefore, locked for all main line train movements. A feature of the new S-20 mechanism as compared with its predecessor is that the spring which returns the lock plunger to engagement with the lock rod is 50 per cent stronger, thus effectively returning the mid-section of the switch point to its normal position.

Whereas on previous machines both an upper and lower tier of contacts was necessary for the point detector and mechanism controller, the new machines employ only an upper tier of contacts which facilitates inspection and maintenance and still provides for the necessary circuits. An additional feature is that point-detection can be provided to check the closed position of both switch points, i.e., in the normal, reverse, or normal and reverse positions of a switch.

Toncan CorWel Subdrainage Pipe

THE Republic Steel Corporation, Cleveland, Ohio, has recently placed on the market a new subdrainage pipe, which it has named the Toncan CorWel pipe, and which has been designed particularly for under-drainage systems for roadbeds, retaining walls, etc.

The Toncan CorWel pipe is a perforated, helically-corrugated galvanized Toncan Iron pipe of the full circle type. The pipe is fabricated with a continuous welded seam extending longitudinally from end to end, which is automatically welded before the pipe is corrugated. The perforations are approximately $\frac{1}{4}$ in. in diameter



A Section of Perforated Toncan CorWel Subdrainage Pipe

and are spaced in six rows approximately one inch apart, with the perforations in each row spaced longitudinally so as to place the holes in the inside crest of each corrugation. The pipe is galvanized after fabrication, perforating and corrugating by the hot-dip process, with a two-ounce coating of prime western spelter.

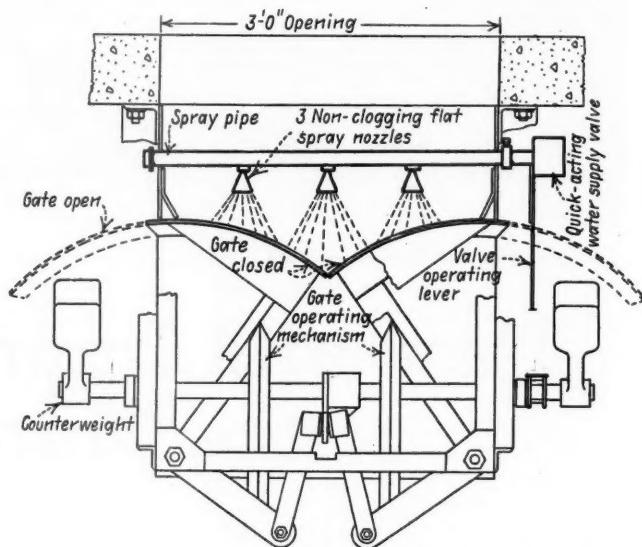
Toncan CorWel pipe has an inside diameter of six inches and may be ordered perforated or plain in 18 or 16 gage metal and in sections of any length up to and including 24 ft. The sections of pipe are joined by bolted connecting bands, and a complete line of special fittings may be ordered.

Dust Allaying Device for Coaling Plants

ADUST-ALLAYING device has been developed and installed recently by Ross and White Company, Chicago, for wetting down coal and eliminating the dust nuisance incident to the fueling of locomotives at coaling plants. The apparatus comprises three non-clogging fan spray brass nozzles attached to a supply

pipe placed transversely in the top of the discharge chute and on the inside of the Ross and White sidecut non-skim coaling gate.

The outstanding feature of the device is its automatic operation which is provided by a bar and lever attachment between the lever used for opening the coaling gate to



Drawing of a Ross & White Side-Cut Coaling Gate Equipped with the Automatic Flat Spray Dust-Allaying Nozzles

and the quick-acting water supply valve. The opening of the coaling gate turns on the sprays and each nozzle discharges approximately 18 gal. of water per min. under pressure of 40 lb. per sq. in. The arrangement of the nozzles produces three flat water sprays which wet the coal thoroughly and eliminate dust as the coal flows from the bin. As the gates are closed, the action cuts off the sprays automatically, thus preventing unnecessary loss of water. It is said that users have expressed their satisfaction over the efficient manner in which the device operates and the elimination of the cloud of dust which frequently surrounds the hostler and covers his person as well as the locomotive during coaling operations.

New Developments in Lead Paints

DURING the last year the National Lead Company, New York, has introduced certain refinements in the manufacture of its Dutch Boy white lead that have resulted in a generally improved product. One respect in which this improvement is manifested is in the increased whiteness of the lead. In the laboratory the whiteness of lead is established through the use of a photometer by comparing its light reflective property with that of pure magnesium oxide, the whitest substance known. It is said that when examined in a photometer the improved white lead will reflect approximately 90 per cent of white light as compared with 81 per cent for the commercial product of a few years ago.

Still another improvement has been an increase in the hiding power of white lead. In this connection it is pointed out that formerly a gallon of pure white lead paint consisting of equal parts of white-lead paste and linseed oil would obscure about 170 sq. ft. of black surface, whereas it is said that today a gallon of the im-

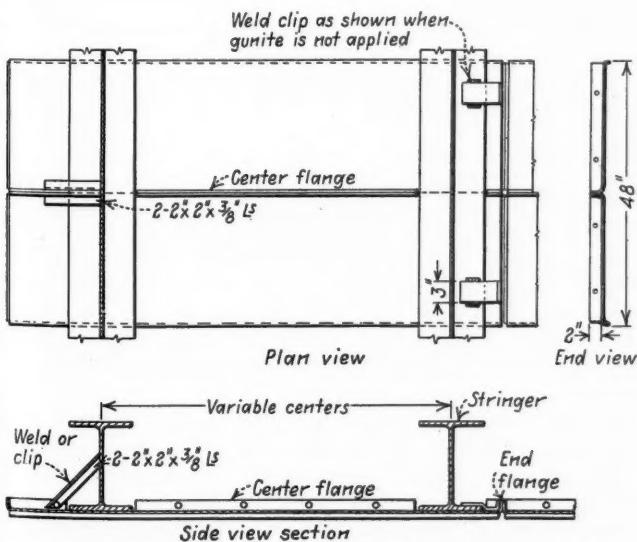
proved paint formulated on the same basis will hide about 210 sq. ft. of the same type of surface, an increase of slightly more than 23 per cent. In addition, it is said, that the refinements in manufacture have also resulted in an increase in the so-called "bodying" or paint-thickening properties of Dutch Boy white lead. It is claimed that the better body makes it possible to add the amount of linseed oil needed to obtain the desired result and still get a full-bodied paint that brushes out smoothly without running or sagging.

The National Lead Company has also announced that, as the result of recent experience, it had been found that its Dutch Boy quick-drying red lead is proving particularly adaptable to use for coating submerged surfaces such as at water-front structures or on the interiors of water tanks. This product, which consists of red lead in a synthetic resin vehicle, was originally developed for use in locations where the use of a quick-drying coating was indicated. It is said that it dries in about two hours, thereby making it possible to apply two coats in one day if this should be considered desirable. Experience with the paint is said to have shown that, when it is used on submerged surfaces, it has the additional advantage of being highly resistant to the softening influence of water.

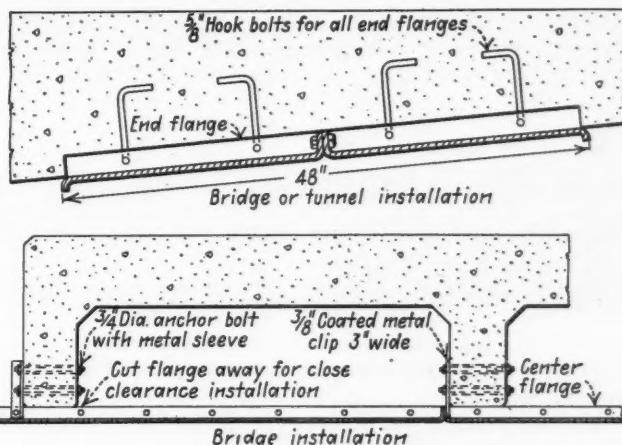
Armco Asbestos-Bonded Blast Plates

THE American Rolling Mill Company, Middletown, Ohio, has developed a special Armco asbestos-bonded blast plate for use on bridges, tunnel linings, and other structures over tracks to protect them from the severe action of the stack exhaust of locomotives.

The blast plates are made of Armco Ingots Iron, and are protected by a heavy galvanized coating of zinc and a coat of special bituminous material with a minimum thickness of $\frac{1}{8}$ in., bonded to the galvanized metal by the exclusive Armco asbestos bonding process. Armco blast plates are available in a variety of lengths and widths in 8, 10, and 12 gage metal, weighing from $8\frac{1}{2}$ to 6 lb. per sq. ft. and are applied so that angle bolts, connectors and hangers are protected by the blast plate from direct contact with the engine gas and cinders.



Method of Installing Armco Blast Plates Below Stringers or I-Beams



Methods of Installing Armco Blast Plates for Protection of Concrete Surfaces of Bridges or Tunnels

It is said that Armco blast plates are light and easy to install; and that they provide a plate unusually resistant to the severe chemical deterioration and physical abrasion of the locomotive exhaust, as shown by extensive field tests and accelerated laboratory tests, which are reported to show practically no effects on this bituminous coat of severe blast fumes and cinder action. The bituminous coating is firmly bonded to the plate by the asbestos-bonding process, in which the asbestos fibres are embedded both in the galvanized coat and in the bituminous coat. It is also said that the bonded material on these plates can be reapplied readily in the field, providing economical maintenance.

This New Crane Has Telescoping Jib Boom

ACAR-mounted crane embodying a telescoping trolley boom of the horizontal or jib type has been developed by the Silent Hoist Winch & Crane Company, Brooklyn, N. Y. Although this unit was developed especially for use in laying rail and handling other materials in the city-owned subway system of New York City, and for that reason was designed for electric operation, it is considered to have advantages for use in steam railroad service, and is also available with gas-electric or straight gasoline drives.

The control cab of the new crane, which is full revolving, is mounted at one end of a Magor flat car, where it is in a position to handle material to or from the crane car or an adjacent car. The boom projects in a horizontal direction from the top of the cab and consists of two parts, a main boom, on which the main hook is carried on a trolley, and an auxiliary telescoping boom, which provides an auxiliary hook line at longer radii. A feature of the boom is an interlocking arrangement whereby the trolley serves the dual purpose of carrying the main hook and of telescoping the auxiliary boom.

Three Silent Hoist worm-gearred units are incorporated in the crane, one for raising the main and auxiliary hooks, another for actuating the trolley, and a third for swinging the turret. For electric operation the crane incorporates three $7\frac{1}{2}$ -hp. motors, one each for the hoisting and swinging operations and another for operating the trolley. Limit switches are provided for controlling the travel of the main and auxiliary hooks and for limiting the travel of the auxiliary boom for the stowed position. Machines equipped with gasoline or gas-elec-



View of the New Crane With the Telescoping Auxiliary Boom in the Extended Position

tric drives will have mechanical linkages in place of the limit switches.

The main hook of the new crane has a lifting capacity of 10,000 lb. at 15 ft. per min., while that of the auxiliary hook is 5,000 lb. at 30 ft. per min. From the center line of the turret to the mid-point of the main hook, the maximum and minimum distances are approximately 14 ft. and 3 ft., respectively, while for the auxiliary crane hook the corresponding distances are 25 ft. and 17 ft. respectively. The turret revolves at the rate of 2½ revolutions per minute.

Continuous Blue Printing Machine

THE C. F. Pease Company, Chicago, has produced the Model 22, a new continuous blue printing, washing and drying machine with an attractive streamlined appearance, as its latest development in fast, efficient blue printing machines.

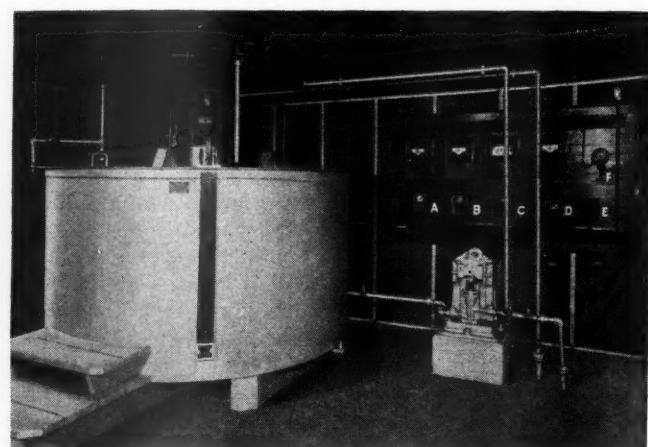
The Model 22 utilizes the patented Actinic arc lamps, which are now controlled through a new patented switch arrangement permitting the lamps to operate for any one of three speeds desired. The potash and hypo application are easily and quickly interchanged by a simple level control and the washer consists of three horizontal water tanks upon which the paper floats as it is washed. Nine aluminum drums are used to dry the paper.

The machine is designed to give the operator a maximum of operating facility and has a high production rate of 24 lin. ft. per min. on direct current and 18 lin. ft. per min. on alternating current. On smaller tracings, the slower speed permits the use of slower speed blue print paper, producing a better quality of blue prints. It is said that the new system of washing and drying elim-

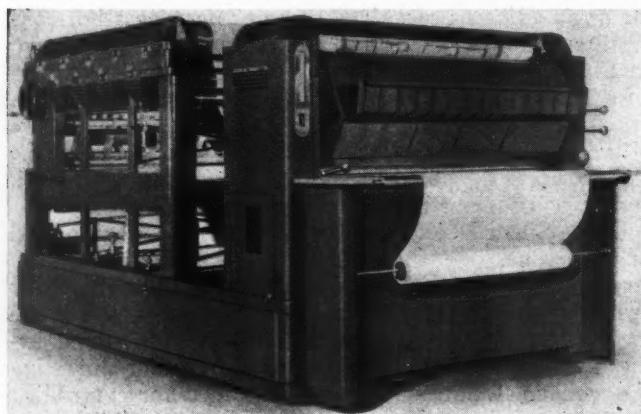
inates tension wrinkles and distortion and produces a flat finished blue print of superior quality. The drying system is also stated to be more efficient, permitting a considerable saving in the consumption of gas or electricity, as compared to the older types of machines.

Cycle-Controlled Dearborn Treating Plant

THE Dearborn Chemical Company, Chicago, has developed a complete treating plant, known as the Type ERC cycle-controlled treating plant, which is designed for accurate chemical treatment of water in wayside tanks at locations where the water may be supplied at varying and uncontrollable rates or where the



Interior of a Type ERC Cycle-Controlled Treating Plant

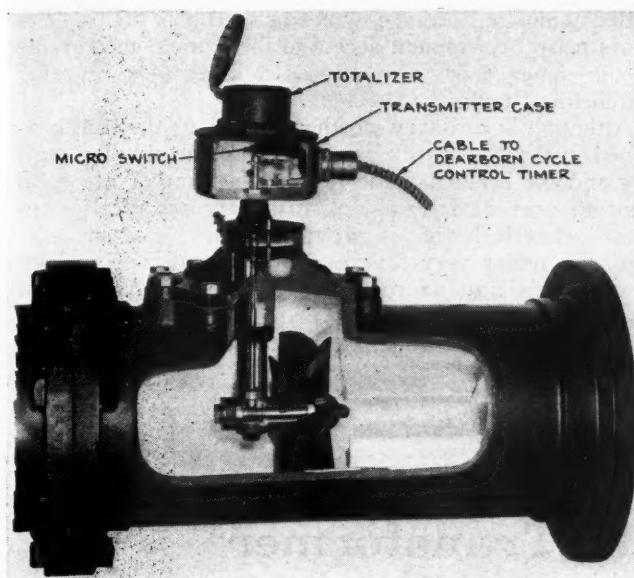


The Model 22 Continuous Blue Printing, Washing and Drying Machine

treating plant cannot be conveniently located near the water main.

The cycle-controlled treating plant consists of a Dearco-Sparling water meter of the velocity or current type with a micro switch which is installed in the main leading to the water tank, and a chemical mixing and pumping plant which may be located at any convenient point. This chemical mixing and pumping plant contains a chemical tank with a motor or crank-driven agitator and a chemical pump and electric motor, all of which are controlled automatically unless the agitator is operated by a hand lever crank.

In the operation of the plant, the micro-switch on the water meter is set to make a momentary contact whenever a predetermined amount of water has passed through the meter to the tank. The micro-switch is connected to a time-delay relay at the treating plant, which operates the electric motor of the chemical pump,



Part Cut-Away View of the Dearco-Sparling Water Meter and Micro Switch

which in turn pumps the chemical solution from the agitator tank into the water tank. The chemical-pump motor operates for any desired length of time, from 2 seconds to 20 minutes, depending upon the dial setting of the time-delay relay. The agitator tank may be equipped with an electric motor-driven agitator or hand lever crank. If a motor-driven agitator is used, a timing mechanism may be connected to another time-delay relay for the automatic agitation of the solution at regular intervals. When meter registration is desired at a remote location, a second micro-switch can be installed at the water meter for operating a remote electric totalizer.

The agitator tank is of sufficient size to contain enough solution to treat the water at maximum hardness for 24 hours, without concentrating the treatment solution to the point of crystallization in either the chemical tank, the chemical pump or the chemical feed lines. The only manual attention required with this plant is the addition of the proper amount of chemicals and water to the chemical tank once every 24 hours. The operator who attends to this, also turns on the agitator motor or operates the hand lever crank until the chemicals are dissolved and the solution is thoroughly mixed.

The principal advantages of this type of treating plant are that it is fully automatic, except for the labor required to charge the chemical tank once a day; that it is accurate and flexible, the chemical pump automatically pumping the required treatment to the wayside tank regardless of irregularity of flow in the water main, and that it can be installed at any point or distance with respect to the water main without major pipe alterations, because no pipe connection is required between the main water supply line and the treating plant.

Triple-Sealed Roofing Products and Siding

THE Celotex Corporation, Chicago, has developed a complete line of asphalt shingles, roll roofing and siding that is manufactured by a patented Triple-Sealed method of saturating the felts, which is

said to provide extra strength, longer wear, and greater protection.

The Triple-Sealed method of saturating the felts is accomplished in the following manner. The inner seal is applied by forcing the asphalt into the felt from one side only, driving pocketed air and moisture out the opposite side. This sealing process closes the inside of the felt, filling the spaces between the fibers with asphalt and thoroughly coating each fibre. The felt is then submerged in hot asphalt, uniformly coating the surface on both sides, and lastly it is coated with a high-melting point, tempered, mineral-filled asphalt.

The asphalt shingles and the Celotex Brik-Face Siding, which are Triple-Sealed, are available in a wide variety of designs, colors and color blends. The Celotex super-grade and standard grade smooth roll roofing are each available in several weights in rolls 36 in. wide and 36 ft. long. The Celotex mineral-surfaced roll roofing is available in attractive colors and color blends in 90-lb. rolls 36 in. wide and 36 ft. long, or in 99-lb. rolls 18 in. wide and $7\frac{1}{3}$ ft. long.

Nalco Waterlab

ASPECIAL test cabinet, laboratory sink and faucet, named the Nalco Waterlab, has been designed by the National Aluminate Corporation, Chicago, for installation at important railroad terminals. This set provides facilities for the scientific control of locomotive water treatment and makes the use of a special room for water testing work unnecessary.

The Nalco Waterlab consists of a test cabinet of white enameled steel with compartments arranged to afford convenient receptacles for Nalco test equipment used in the control of locomotive water treatment. The laboratory is supplied with an electric light, electrical outlets



The Nalco Waterlab with the Upper Cabinet Doors Open and Slid Back into the Cabinet, Showing the Interior Arrangement

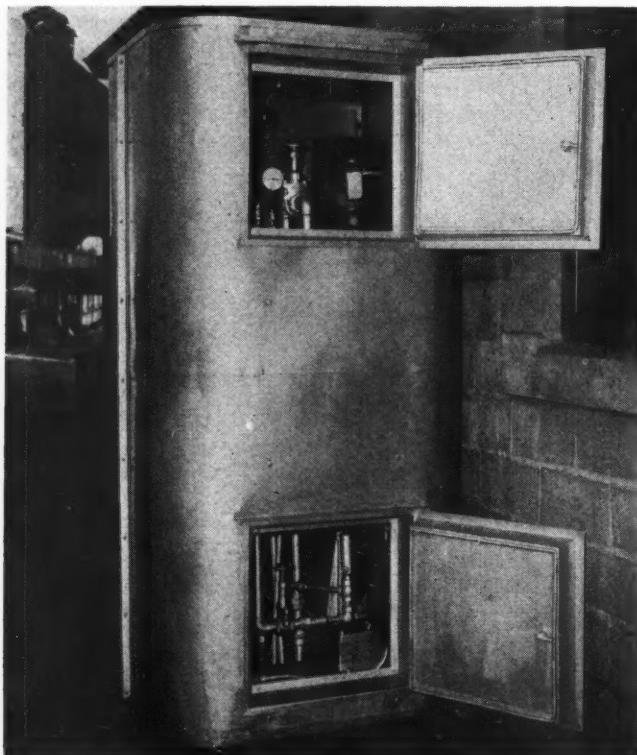
for testing equipment and a laboratory sink and water faucet.

The Nalco Waterlab furnishes a clean, compact and conveniently-arranged laboratory for water treatment testing and it is said that its quality and general appearance help to emphasize the importance of the proper handling of water supplies and keep this subject from being neglected at the terminals where this equipment is installed.

Unit-Type Water-Treating Plant

THE National Aluminate Corporation, Chicago, has developed a completely self-contained water treating unit for installation in congested terminal areas where space for the usual type of metal house is not available. This unit, known as the Unit-Type treating plant, is very compact and consists of three compartments housed in an insulated, completely-enclosed metal cabinet, which occupies only the floor space that would ordinarily be required for the chemical vat alone. The lower compartment houses a chemical proportioner, which can be installed in any one of the various Nalco types, the middle compartment contains the chemical solution tank and above this in the top compartment are the control panel, mixing equipment and any additional control equipment necessary for the particular installation. The water, electricity and chemical lines are brought up through a tile connection in the center of the foundation.

Insulation of the entire unit is provided by four inches of insulating material on the inside of the case or metal jacket. Four insulated metal doors, two on each side, open into the upper and lower compartments. These doors are constructed like refrigerator doors and are



The New Nalco Unit-Type Water Treating Plant. Showing a Part of the Proportioning Equipment in the Lower Compartment and Some of the Control Equipment in the Upper Compartment

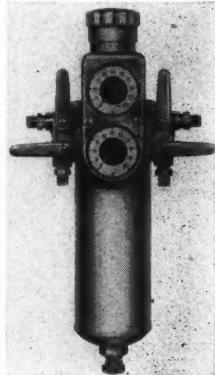
sealed against air leakage by means of rubber strips. The doors permit convenient access to the equipment and one of the upper doors also affords a means for charging the chemical tank.

Although in ordinary weather conditions the heat contained in the water used in making up the solution each day and the heat from the proportioner motor are sufficient to prevent freezing, a small thermostatically-controlled electric heater is provided, which cuts in automatically under very severe weather conditions to supplement this heat as required. It is said that several of these unit water treating plants have been operated successfully during the past winter in temperatures of 20 deg. F. below zero.

New DeVilbiss Air Transformer

THE DeVilbiss Company, Toledo, Ohio, is introducing a new air transformer, known as type HLC, that is designed to furnish clean, moisture-free air at uniformly regulated pressure for paint-spraying purposes. The more prominent characteristics of

The HLC Air Transformer Furnishes Clean, Moisture-Free Air at a Regulated Pressure



the new transformer are said to include its greatly increased capacity, improved filtering facilities and more sensitive regulation and control of pressure, all of which make for added effectiveness and more economical operation.

The transformer body is a zinc die casting, while the condensing chamber is a brass cylinder and both are chromium plated to minimize the accumulation of dirt and to facilitate cleaning. Equipped with two regulated and two non-regulated air outlets and built-in leak-proof valves, the transformer includes a large synthetic rubber regulator diaphragm, an improved baffle arrangement and a new metal filters which is wholly mechanical and eliminates the old-fashioned cotton waste pack and the necessity of its repeated removal and replacement. It is said to require no daily attention except for draining and this may also be overcome by the installation of an automatic water drain. The pressure gages are enclosed and protected and the regulator knob is located in a convenient position.

The greater capacity of the new unit is said to increase production per gun, assure regulated control of the air supply, remove oil, water, dirt and other foreign matter from the air and handle in excess of 50 cu. ft. of air per min. It is claimed that it will furnish ample air for two production spray guns in continuous and simultaneous operation or for three spray guns in ordinary intermittent use.

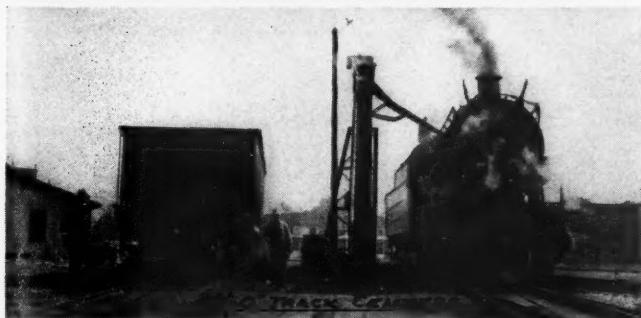
New Celotex Interior Finish Materials

THE Celotex Corporation, Chicago, has added four new colors, green, buff, ivory and a blend of light brown tones, to its line of interior finish cane-fibre insulation boards and now provides these boards in the various sizes of tile boards and planks with new, concealed nailing joints. In addition, a new wainscoting has been developed with a tough, brown leather-like surface of great durability. These products, including moldings, friezes, trim and ornaments, which are also available are adapted for interior finishes for commercial and industrial buildings, which may be used in place of lath and plaster, ordinary wall boards or plaster boards. The interior finish boards are available in thicknesses of $\frac{1}{2}$ in. and 1 in. and in various sizes of tile board and plank or in the large size board 4 ft. wide and 8 to 12 ft. long.

New Red Devil Engine Coaler

THE Ross and White Company, Chicago, has developed a new type of Red Devil direct-engine-coaler which can be installed between narrow track centers without close clearance on either track. This type of coaler requires track centers of only 24 ft. between the coal-receiving track and the engine-coaling track, while other types of Red Devil coalers require track centers of approximately 40 ft.

This type of Red Devil engine-coaler is constructed with an inclined conveyor between the tracks and parallel to them, supported on steel frames. At the base of the inclined conveyor is a steel hopper into which the inclined skip-bucket type coal unloader dumps. The inclined coal unloader operates from a shallow pit under the coal receiving track. At its upper end, the inclined conveyor discharges at right angles into a standard



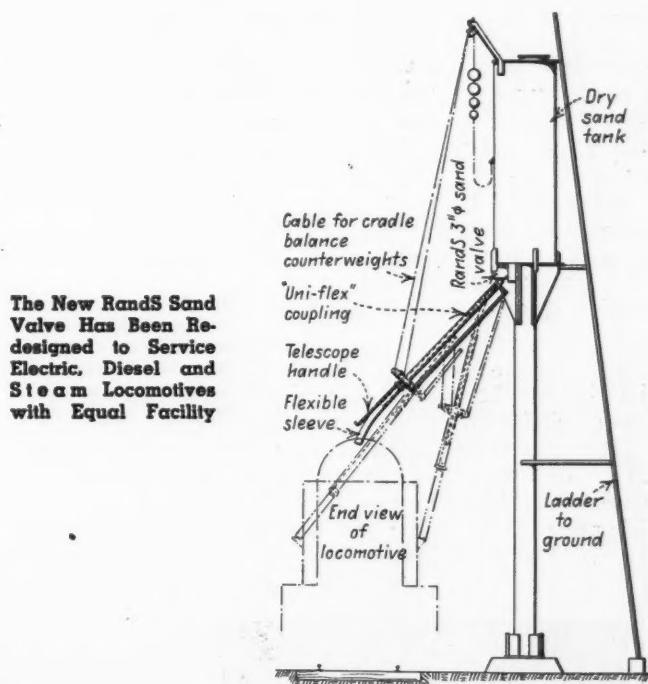
Above—Side View of New Red Devil Direct-Engine-Coaler. Below—End View Showing its Location Between Tracks on 24-Ft. Centers

hooded coaling apron, which is counterbalanced and may be swung upward for ample clearance. The coal unloader is operated by a 5-hp. electric motor and the inclined conveyor by a $7\frac{1}{2}$ -hp. electric motor. The gears of both motors run in enclosed oil chambers. Operation is controlled by a weatherproof push button placed on the hood of the coaling apron.

This type of Red Devil direct-engine-coaler has a capacity of 60 to 90 tons per hour, has ample clearance, according to A. R. E. A. specifications, on both tracks and is of rugged construction throughout.

New Sand Valve for Locomotive Service

THE Roberts and Schaefer Company, Chicago, has redesigned its RandS standard 3-in. diameter moisture-proof sand valve which has been widely used for almost 30 years in supplying sand to locomotives. Several outstanding features of the new design have added to the practicability of the device which,



it is said, can now be used with equal facility in furnishing sand to electric, Diesel and steam locomotives.

The new RandS sand valve and a telescoping spout unit are furnished with dry sand storage tanks with capacities ranging from 3 to 20 tons for single tracks, or two units for parallel tracks. The new device can also be used, within limitations, to convert existing sanding facilities into units which will serve electric or Diesel as well as steam power.

Incorporating the use of a special uni-flex coupling which provides universal flexibility of the telescoping spout, and assures rigidity when the spout is in the retractable position, the new design does not interfere with the moisture-proof feature of the device. A flexible sleeve, lined with gum rubber and attached to the end of the telescoping delivery pipe, is said to make it possible to service sand boxes located on the sides, in the driver's

cab or on the top of electric or Diesel locomotives, as well as the sand domes on steam locomotives without impairing the free flow of sand.

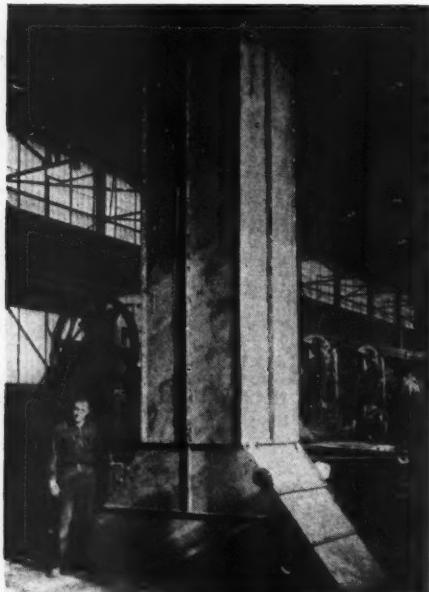
A spout cradle, equipped with a carrying roller and a deflecting roller for cables, balanced with the aid of spherical retiring counterweights, pivots at the valve ball joint, swings semi-rigidly with the latter but flexes to assure full play for the motion of the uni-flex coupling. The new design also incorporates the reduction of surface contact-slides and the use of separate counterweights which act in unison with the cradle counterweights in the retractable spout position to facilitate spout movements. Overhauling of counterweights brings the spout within easy reach of the operator, while a hand rope, swinging with the spout and kept taut, operates the cut-off gate of the valve without any danger of fouling.

Armco Smoke Jack

THE American Rolling Mill Company, Middletown, Ohio, is building a smoke jack of special asbestos-bonded Armco Ingot Iron, which is highly resistant to the severe chemical deterioration and physical abrasion of locomotive exhaust gases.

The smoke jack is of the hood type, with a flared lower section rectangular in shape tapering up to a square column which projects through the roof of the engine house. The entire smoke jack is constructed of Armco Ingot Iron which is protected by a heavy galvanized coat of zinc, over which is applied a coat of a special bituminous material with a minimum thickness of $\frac{1}{8}$ in. This bituminous coat is applied by the exclusive Armco asbestos-bonding process, in which the asbestos fibres are embedded in both the galvanized coat and the bituminous coat, insuring a permanent bond. The smoke jack is constructed with all connection angles projecting outward and all bolts and hangers are placed outside the jack where they cannot come in direct contact with the gas or cinders from the locomotive.

It is stated that Armco smoke jacks have been shown to be unusually resistant to the action of the exhaust gases and cinders, by extensive field tests and accelerated laboratory tests of the specially protected Armco Ingot Iron. The bituminous protective coat on the Armco



Shop View of an Assembled Asbestos - Bonded Armco Ingot Iron Smoke Jack

Ingot Iron used in their construction is non-inflammable at temperatures as high as 1100 deg. F. and can be renewed. The smoke jacks are shipped in convenient knocked-down form, with only eight sections to assemble. Several sizes are available and they can be adapted to hoods of other design with little or no chance in roof construction.

Ingersoll-Rand Air-Line Lubricator

THE Ingersoll-Rand Company, New York, has perfected a new air-line lubricator, named the OIL-IR, for use in the lines of air-driven tools, including rock drills, spike-drivers, diggers, tie tampers, etc., which provides oil for the proper lubrication of the cylinders and working parts of such equipment.

The OIL-IR is cylindrical in shape and tapped at each end for insertion in a one-inch pipe line. It contains an oil chamber constructed of forgings and steel tubing, with a pick-up ring connected to a needle valve. The needle valve regulates the passage of the oil into the air chamber of the lubricator and can be adjusted from the outside of the lubricator for any desired flow of oil without shutting off the air pressure. An automatic tension spring within the needle valve maintains the valve setting. A large filler plug is provided for the oil chamber, which



The OIL-IR Is Used in Air Lines To Provide Proper Lubrication of Pneumatic Tools

permits easy refilling, and the oil chamber is of sufficient size to provide oil requirements without refilling for a period of time in excess of the usual working shift.

In its operation, the velocity of the air passing through the OIL-IR creates a partial vacuum, drawing the oil from the oil chamber through the needle valve into the air chamber. This operation takes place regardless of which end of the lubricator is connected to the pressure side of the air line and regardless of the position of the lubricator. It is also stated that siphoning back, or leakage of the oil when the air is shut off, is almost completely eliminated in the OIL-IR, and that it will operate satisfactorily with proper oils over the entire normal temperature range.

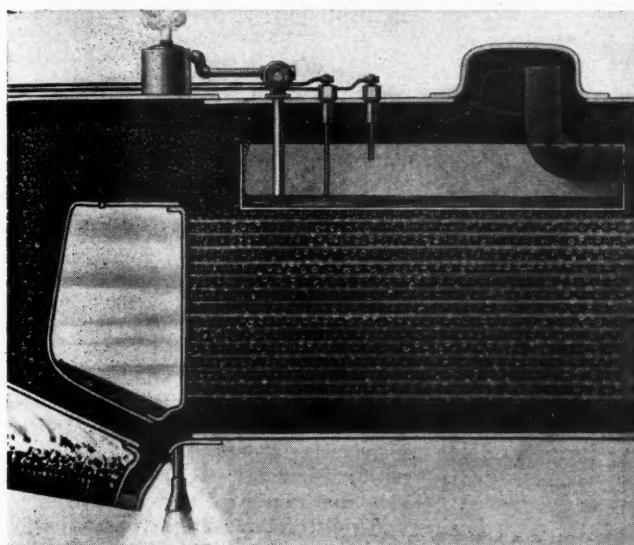
Foam-Collapsing Automatic Blowoff

THE Electro-Chemical Engineering Corporation, a subsidiary of the Dearborn Chemical Company, Chicago, has developed an automatic electrically-controlled foam collapsing blowoff system that is designed to prevent water carryover in steam locomotives and to reduce blowdown losses.

The system consists of a foam-collapsing trough

mounted rigidly in the locomotive boiler directly under the dry pipe intake, a long electrode and a short electrode which project into the trough, a solenoid air valve, a foam meter, which is mounted in the cab, two blowoff valves and a steam separator and drain.

The electrodes are connected to the foam meter and the solenoid air valve. When the foam rises to a predetermined level near the top of the boiler it spills over into the foam collapsing trough, carrying with it a large proportion of the oil and floated suspended matter. In the trough the foam bubbles quickly collapse and the water and suspended matter in the trough make contact with the long electrode. This contact lights the safe light on the foam meter in the cab and also automatically



Cut-Away View of Part of a Locomotive Boiler Showing the Installation of the Foam Collapsing Trough and Electrodes

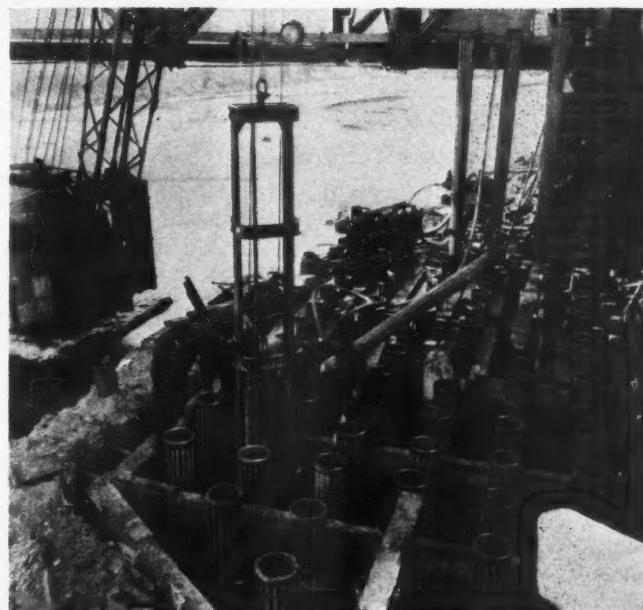
operates the solenoid air valve, which in turn opens both blowoff valves. The blowoff valves blow down the water in the trough, removing the most harmful contaminating matter from the boiler water.

It is said that this new foam-collapsing system, with its fully automatic operation, maintains a water-free space under and around the dry pipe intake under practically all conditions, thus providing reduced steam velocity and preventing entrained water or water carryover. This permits the engineman to utilize the full steaming capacity of the locomotive without the necessity of easing off on the throttle or shortening the cut-off.

Tapered Monotube Steel Piling

THE Union Metal Manufacturing Company, Canton, Ohio, has developed fluted steel monotubes for cast-in-place steel-encased concrete piles for bridge and trestle construction. The Monotube piles consist of a tapered steel casing with a single longitudinal welded seam, with a steel point welded to the small end and a driving collar to the butt. The casing is fabricated by the cold rolling process and the surface has a longitudinal fluted design to increase the skin frictional area.

Steel monotubes are available in gages, tapers and lengths to meet any soil condition. It is said that they



Driving Tapered Monotube Steel Piles for a New Bridge Abutment

are easy and economical to drive; that the fluted design provides sufficient stiffness or rigidity to permit driving without a core or mandrel; that owing to their light weight, they are easy and economical to handle and transport, and that each casing can be rigidly inspected after driving and before being filled with concrete, resulting in a substructure free of uncertainties which offers the combined structural values of both steel and concrete.

New Book . . .

Freight Rates on Rice: An Analysis of a Commodity Rate Structure, by T. W. Douglas. 133 pages. 9 in. by 6 in. Bound in paper. Published by University of Pennsylvania, Philadelphia, Pa.

Mr. Douglas probably chose to analyze rates on rice as his doctor's dissertation in economics at the University of Pennsylvania because that commodity, while it gives a picture of nation-wide freight-rate factors, at the same time allows of intensive study of a small area of production. Rice is grown almost exclusively in concentrated districts along the gulf in Texas and Louisiana and in and about Stuttgart, Ark. On the other hand, its market is nation-wide and export trade is substantial. At the same time it is not so important a commodity as to present an insurmountable job of research.

The author does a thorough job of describing production, milling, channels of trade, etc. He then discusses the rate problems of the industry both historically and analytically, with special attention to market competition, carrier competition and transit privileges. Consideration of the rate structure is divided into two chapters—one 1900 to 1925 and the other 1925 to 1936,—principally because 1925 marked the first I. C. C. decision based on the distance, or cost-of-service principle as opposed to group-differentials based on common markets. Important cases are accorded individual chapters.

Mr. Douglas is of the opinion that since the rice industry is not concerned over rate level, but only in intra-industry relationships, the I. C. C. is powerless to prescribe satisfactory rates unless the mills, in co-operation with the carriers, agree upon the differentials to be applied.

His thesis is more than thorough, clearly-written and well-documented. It is a fine job of "sampling" in the complicated field of rates.

NEWS

January's N. O. I. Was \$45,566,633

3.33 per cent return compares
with 2.41 per cent in
same 1939 month

Class I railroads in January, had a net railway operating income of \$45,566,633, which was at the annual rate of return of 3.33 per cent on their property investment, according to the Bureau of Railway Economics of the Association of American Railroads. In January, 1939, their net railway operating income was \$32,947,172 or

same month in 1939, it amounted to \$6,110,574 or 2.79 per cent, and for the same month in 1930 it was \$7,576,945 or three per cent. Gross in the Southern district for January, amounted to \$47,197,002, an increase of 9.7 per cent compared with the same period in 1939, but a decrease of 20.7 per cent below the same period in 1930; operating expenses totaled \$35,455,960 an increase of 11.2 per cent above the same period in 1939, but a decrease of twenty-five per cent under 1930.

Class I roads in the Western district for January, had a net of \$9,216,651, or 2.39 per cent; for the same month in 1939, their net was \$4,931,599 or 1.28 per cent, while in 1930 it was \$14,129,598 or 2.76 per cent on investment. Gross in the Western dis-

CLASS I RAILROADS—UNITED STATES			
	Month of January		
	1940	1939	1930
Total operating revenues	\$345,498,219	\$305,778,767	\$445,920,950
Total operating expenses	257,341,007	232,946,449	352,338,745
Taxes	31,550,700	29,040,248	28,939,753
Net railway operating income	45,566,633	32,947,172	54,645,698
Operating ratio—per cent	74.48	76.18	79.01
Rate of return on property investment	3.33	2.41	3.81

2.41 per cent, and in the same month of 1930 it was \$54,645,698 or 3.81 per cent.

Gross operating revenues for January, totaled \$345,498,219 compared with \$305,778,767 for January, 1939, and \$445,920,950 for January 1930, an increase of 13 per cent over 1939, but 22.5 per cent below 1930. Operating expenses for January amounted to \$257,341,007 compared with \$232,946,449 for the same month in 1939, and \$352,338,745 for the same month in 1930—10.5 per cent above the former, but 27 per cent below 1930.

Class I roads in January, paid \$31,550,700 in taxes compared with \$29,040,248 in the same month in 1939, and \$28,939,753 in the same month of 1930.

Twenty-five Class I roads failed to earn expenses and taxes in January, of which seven were in the Eastern district, seven in the Southern district and 11 in the Western district.

The Eastern-district net for January was \$30,005,842, or 3.93 per cent; for the same month in 1939, it was \$21,904,999 or 2.87 per cent, while in 1930 it was \$32,939,155 or 4.92 per cent. Gross in the Eastern district for January, totaled \$180,218,418, an increase of 17 per cent compared with 1939, but a decrease of 20.7 per cent compared with 1930; operating expenses totaled \$128,477,396, an increase of 13.9 per cent above the same month in 1939, but a decrease of 27 per cent below the same month of 1930.

In the Southern district the January net was \$6,344,140, or 2.90 per cent. For the

district for January amounted to \$118,082,799 an increase of 8.7 per cent compared with the same period in 1939, but a decrease of 25.8 per cent below the same period in 1930; operating expenses totaled \$93,407,651, an increase of 5.8 per cent above the same period in 1939, and a decrease of 27.6 per cent below 1930.

North-South Divisions

The Interstate Commerce Commission has postponed until May 1 the effective date of its order in the north-south divisions case, in which the Southern roads, other than the Norfolk Southern, have recently petitioned for rehearing and reargument. The commission's decision in this No. 24160 proceeding was reviewed in the *Railway Age* of August 26, 1939, page 320, while the petition for rehearing was noted in the issue of February 10, page 300.

1939 Air Traffic

Domestic air carriers in 1939 transported 1,717,090 revenue passengers, an increase of 45.9 per cent over the 1,176,858 carried in 1938, according to statistics recently made public by the Civil Aeronautics Authority. Meanwhile, the revenue passenger-miles flown were up 42.25 per cent; the pounds of express carried increased 29.69 per cent and the express pound-miles flown 24.47 per cent. Also, there was an improvement of 11.8 per cent in the revenue passenger load factor which rose from 50.18 per cent to 56.1 per cent.

Pension Board's 1938-39 Report

Latest data on payments is given with a review of the last fiscal year

Retirement benefits under the Railroad Retirement Act during the fiscal year 1939 amounted to \$106,841,632 bringing to \$194,440,151 the total payments made to retired railroad workers and their survivors since the beginning of the retirement system, according to the Board's annual report for the fiscal year ended June 30, 1939. Payments during the fiscal year 1939 were 29 per cent higher than during the preceding fiscal year.

Retirement benefits through June 30, 1939, had been paid to more than 169,800 individuals, about 100,800 of them employee annuitants; 48,700, pensioners who had been transferred from the private pension rolls of the railroads under the Railroad Retirement Act of 1937; 16,000, death beneficiaries under the 1937 act; and 4,300, survivor annuitants, including persons who received the 12-month death benefit annuity provided under the Railroad Retirement Act of 1935. By the end of the fiscal year 1939 there had been 10,000 deaths among annuitants, 9,000 among pensioners, and 1,800 deaths and terminations among survivor annuitants, leaving over 132,000 continuing payments in force. This represented a net gain of 24,000 over the preceding fiscal year.

The monthly amount of the average single-life annuity finally certified to June 30, 1939, was \$69.04, according to the report. The average monthly amount of all pensions certified to that date is \$57.91. Average lump-sum death benefit payments under the 1937 act increased from \$52.70 in the fiscal year 1938 to \$86.08 in the latest year. As these latter payments are computed at the rate of 4 per cent of credited compensation after January 1, 1938, minus any amount paid out as annuities prior to the time of death, the average amounts will tend to increase for some time.

The average age at retirement was 67.5 years for all annuitants certified prior to July 1, 1939, the report states. It explains that this average had been decreasing since the beginning of the retirement system. Those annuities beginning to accrue before January, 1937 showed an average age of 69.2, the report points out, while for annuities beginning to accrue in the last months of the fiscal year 1938, the average

(Continued on page 473)

Let R. R. Men Drive Trucks

This is the advice of super-highway solons, who seek to abolish railroad jobs

The peculiar economic philosophy which holds that the nation gets richer—not by increasing production per man, but by decreasing it, blossomed forth in Congress this week in the debate on proposed "superhighways." One man working on a railroad performs too much transportation—the way for the nation to get rich is to have transportation performed by trucks; and, presumably, if that doesn't make us rich enough, we can later on substitute wheelbarrows for trucks.

Representative Snyder, Democrat of Pennsylvania, sponsor of H. R. 8503, the eight-billion-dollar super-highway bill, made a speech on March 1, indulging for the "fifth consecutive year" in the "pleasure and privilege of calling the attention of the House to the advisability of building a system of transcontinental and north-and-south highways across the United States." If we had these highways, Mr. Snyder said, "hundreds of manufacturing concerns would move their manufacturing plants away from the congested parts of the city, down by the water front or railroad front, out along these highways, and thus be able to not only manufacture their commodities cheaper, but they would be on the highways they were going to use in distributing their products."

To soften the blow when he revealed that the highways would cost one-half million dollars a mile, Mr. Snyder went on to talk about the turnpike now being built between Pittsburgh, Pa., and Harrisburg with the aid of a grant from the federal government and a loan from the Reconstruction Finance Corporation. All types of business, he said, favored that turnpike on which the \$10 toll will be paid "willingly" by the "large trucks" because they will be saving more than \$10 by using the road instead of the "up-and-down mountain highway." Meanwhile, however, Mr. Snyder has "left open" the question of whether his super-highways should be toll roads or free roads.

When he went on to talk about the use which would be made of the super-highways by shippers of fruit products, he was asked by Representative Michener, Republican of Michigan, if the benefits to such shippers would not come about by reason of the federal subsidy, and if the proposal would not be "the beginning of a proposition to put out of business and destroy the railroads." Mr. Snyder answered by saying that he would prefer to have private industry build the roads, which would then be toll roads; and then he entered upon another discussion of the Pittsburgh-Harrisburg turnpike. His subsequent word-picture of his vision of the super-highways as "a main street clear across the nation . . . lit up at night," was interrupted by Representative O'Connor, Democrat of Montana, who wanted to know "just what will become of the millions of men em-

ployed by railroads if we substitute the gentleman's road system for the railroads."

Representative Rankin, Democrat of Mississippi, suggested that "they would drive automobiles," and Mr. Snyder thanked the gentleman for thus helping him reply. The Pennsylvanian, who is "strong for the railroads," who "wanted to be an engineer when I was a boy," nevertheless chided the carriers for what he regarded as their poor service to small communities. He did concede, however, that the railroads—"and I am for them"—are "here to stay for the long, continuous haul for certain kinds of service;" he's not "for turning the railroads out now," and will vote for any bill "which provides that if they do away with or consolidate the railroads, the railroad men above 50 years will have to be provided for by pension or in some other way."

Representative Schafer, Republican of Wisconsin, who identified himself as "a former railroad man," suggested that if displaced railroad employees were transferred to truck driving the resultant set-up "would furnish a great deal of additional employment;" because "a railroad with its big power uses a crew of five men to move a train of 110 cars, but to move the same amount by truck you would need more than 110 truck drivers." "A very good point," said Mr. Snyder as he agreed to yield next to the gentleman from Mississippi—Mr. Rankin. The latter wished to say that he had been told by railroad men "that it would take about five trucks to haul one carload of freight, so that instead of having 110 men it would take about 500 men." Mr. Schafer agreed, but he had aimed "to be conservative" in his statements.

Here Representative O'Connor of Montana reentered the debate, qualifying himself by saying that he has "railroaded also." He wanted to know if Mr. Schafer believed that railroad employees 50 years of age and over "would be competent to learn a new method of transportation and take over new methods of transporting goods." Mr. Snyder met that objection by reference to his aforementioned idea of pensioning those "above a certain age;" and Mr. Schafer suggested that with the younger men diverted to truck driving, the older railroaders would be needed to carry out the industry's new role as carrier of "certain long-haul and heavy materials."

After further talk about other aspects of the road proposal, the discussion closed with an observation from Representative White, Democrat of Idaho, who "used to be a conductor myself." The super-highway set-up, Mr. White said, "would increase employment of people now engaged in the railroad business." On the railroads, he added, "they have a slogan of 1,000 tons per man—in a truck this would mean five men and 5,000 tons, and with the trucks now it is impossible to move those loads."

Pension Act Amendment

Representative Pearson, Democrat of Tennessee, has introduced H. R. 8766 to amend the Railroad Retirement Act so as "to provide for medical examinations in furnishing satisfactory proof of disability."

S. F. Bus Line May Enlarge

I. C. C. permits "rounding out" of routes to aid competition with Greyhound

Finding evidence to indicate that "the Pacific Southwest is threatened with a virtual monopoly in bus transportation," the Interstate Commerce Commission, Division 5, has approved applications of Atchison, Topeka, & Santa Fe highway affiliates which are expected to furnish "effective competition" for what the decision calls the present Greyhound-Interstate Transit Lines "combination." Specifically the decision approves applications of Santa Fe Trail Stages, Inc., for "grandfather-clause" rights on routes between Denver, Colo., and Los Angeles, Calif., and between Wichita, Kans. and Los Angeles; and for authority to extend operations over four other routes, described as "feeders and short-cuts necessary to efficient and economical operation" of the applicant's transcontinental route between Chicago and Los Angeles and San Francisco.

The aforementioned reference to the threatened monopoly came after the commission had quoted extensively from an agreement "between a group of 13 different Greyhound lines . . . and their principal transcontinental competitor, a group of bus operating subsidiaries of the Union Pacific Railroad known collectively as Interstate . . . by which these two competing transcontinental systems agreed so far as possible to divide certain traffic between them and to solicit exclusively and preferentially for each other in certain territories." In a brief separate expression Chairman Eastman concurred in the results of the majority decision; but he did not join in the report, which, as he put it, "contains many statements and expressions of opinion with which I do not agree and by which I do not wish to be bound." In the opinion of the chairman the proceeding was "far from a clear case," and "the proof of public convenience and necessity is very thin;" but he was willing "to give applicant the benefit of the doubt."

The whole discussion of the general bus situation in the Pacific Southwest grew out of the majority's consideration of the contention of Pacific Greyhound Lines that the Santa Fe affiliate's application for extensions not covered by "grandfather" rights should be denied with a finding that the applicant could enter interchange arrangements with Pacific. But the commission, without criticizing the Pacific Greyhound-Southern Pacific tie-up, nevertheless asserted that the Santa Fe "can not reasonably be expected to put its coordination efforts in the hands of a bus operator which is 40 per cent owned by its principal rail competitor, and which has refused to cooperate with, and relentlessly opposed the expansion of, the present applicant."

Coming to a consideration of the adequacy of the present service the commission thinks it might very reasonably say that "where there is ample traffic, a dominant existing service without any effective com-

petition is not all that experience has taught that the public needs for its best interests and consequently not an adequate service." The reference to the existing threat of a "virtual monopoly" is followed up with the following: "Such a situation would appear not to be in the public interest. Regulated monopoly is not a complete substitute for competition. The latter fosters research and experimentation and induces refinements in service which are not likely otherwise to be accomplished. Nor is it enough to say that rail and air service and the private automobile provide all the stimulus required as vigorously contended by protestants. Bus travel no doubt makes its greatest appeal to a class of persons who are either controlled by the element of cost or prefer to travel by highway and either do not own or do not care to drive their own cars long distances. It is questionable whether the air services or even the more expensive train services are real contenders for this patronage.

"Competition from within the field of one's endeavor is one thing, that from without is quite another. Those inclined to patronize the bus service, for instance, may find its inherent advantages sufficiently attractive to induce them to use such service as is offered without demanding more. Thus competition from without is met by the inherent advantages of a possibly inferior service and the operator thrives while the patrons are denied that ultimate in service and convenience which they have a right to expect and which would be fostered by direct competition from within the field of endeavor. . . ."

After next citing decisions wherein the commission and the courts "have long recognized that reasonable competition is clearly in the public interest," the report asserts that "there is no question of the ability financially or otherwise of the applicant, backed by its proprietary rail interest, and affiliated as it is with the National Trailways System, to furnish effective competition for the present Greyhound-Interstate combination." Most of the business, it goes on, will come from Pacific Greyhound; but that fact "carries no implication that applicant will not be able to originate a substantial amount of new traffic."

Disposing of the contention that its decision would establish a precedent that a railroad "need not endeavor to effect co-ordination with . . . a motor carrier competitor," the commission declared that "no such conclusion is justified." Also, it said that it did not consider the Santa Fe operations as "improper invasions of the service territory of its competitors." Another "major consideration" is the fact that "regardless of the conclusion herein, applicant and its parent company, has an unquestioned "grandfather" right, and, with abundant financial backing to do so, the obvious intent to continue the present operation between Chicago and expansive Midwest territory, on the one hand, and Los Angeles, on the other."

"Starting with this fact," the majority goes on, "it cannot well be said that this proposal to shorten and improve its transcontinental route and to extend its operations to important and what might be called essential destinations in Pacific coast terri-

Celebrities—It Seems the Air Lines Don't Want to Haul You

Bob Considine, writer for International News Service, had a piece in the Los Angeles Examiner a couple of weeks ago in which he said that air line executives do not want to haul baseball and football teams.

Of course, the air lines do not turn away such business if it is offered—but Mr. Considine quotes an air line executive as saying he'd just as soon not get any more traffic of this kind.

The reason for the air carriers' timidity is given as their fear of unfavorable publicity should they "hurt or knock off a well-known athlete, or a headliner" in any field. The death of Knute Rockne and Will Rogers, this authority believed, did not do the air lines any good.

But more than the fear of accident (because the air lines' safety record in recent months has been excellent)—so Mr. Considine quotes his informant—is the thought that a lot of fans might be assembled for a big game; and the team would not show up, account of its plane being grounded by bad weather. The disappointment of the fans would probably not react favorably on the air carriers' public rating.

tory after having been blocked by a dominant competitor or combination of competitors from reaching those points through the use of cooperative connections is not in the public interest. Stated another way, it would hardly be in the public interest to deny applicant, who is going to operate in any event over the main route, the right to establish feeders and short-cuts necessary to efficient and economical operation."

Miller Confirmed for I. C. C.

The Senate on February 29 confirmed President Roosevelt's reappointment of Interstate Commerce Commissioner Carroll Miller for a new term expiring December 31, 1946.

Eight Eastern Roads to Restore P. & D. Service

Eight railroads in Official territory, together with their subsidiaries, will restore free pick-up and delivery service for l. c. l. freight moving on less-than-carload or any-quantity rates at numerous stated points on their lines, effective March 25. These roads, which had initiated free p. & d. service along with other major Eastern lines in December, 1936, discontinued such service August 15, 1938, discontinued payment of allowances and substituted therefor a schedule of charges for store-door collection and delivery varying from 5 to 10 cents per 100 lb., according to specified station charges.

By supplement No. 12 to I. C. C. tariff A-607, Agent W. S. Curlett provides for cancellation of I. C. C. tariff A-584 and supplementary tariffs of agents Doe, Jones and Sperry, which covered the charges for store-door service, and effects the re-par-

ticipation of the eight carriers in tariff A-607 to which the major carriers which have continued free p. & d. in the East are parties. The eight participating carriers are: Boston & Maine, Chicago Junction, Delaware & Hudson, Indiana Harbor Belt, Louisville & Jeffersonville Bridge & Railroad, New York Central (and subsidiaries), Pittsburg & Lake Erie and the Rutland.

Resumption of free p. & d. service by these roads will place them in a better competitive position with respect to the motor carriers and the railroads which have not discontinued the service. Although their decision to discontinue allowances and levy charges for p. & d. in 1938 is understood to have been based on the belief that losses sustained in rendering the service outweighed considerations of traffic gains, it is apparently their present opinion that they cannot afford to "stay out of the running."

Other New England carriers which also discontinued free p. & d. service in 1938, are as yet parties to Agent I. N. Doe's I. C. C. tariff No. 343 which provides for charges for p. & d. service. They are: Aroostook Valley, Bangor & Aroostook, Belfast & Moosehead Lake, Canadian Pacific, Central Vermont, Maine Central, Montpelier & Wells River, St. Johnsbury & Lake Champlain, Springfield Terminal and Suncook Valley. It is not known whether they will join those roads resuming free p. & d.

Golden Gate Exposition Opens May 25

The Golden Gate International Exposition of 1940 will open on Treasure Island in San Francisco Bay on May 25.

Cleveland Terminal Sued on Red Caps' Tips

A suit to compel the Cleveland Union Terminal Company to pay "red caps" the minimum wage of 30 cents an hour as provided under the Fair Labor Standards Act, was filed on February 29 in the U. S. District Court in Cleveland, Ohio, by the Wage and Hour Division, U. S. Department of Labor. The complaint charges that the defendant terminal company has failed to pay its red caps 30 cents an hour and has falsified its books. Not only has the defendant sought to count tips as wages, the complaint alleges, but red caps have been coerced into reporting that they have received 30 cents an hour as tips.

Seaboard Gets Truck Route

With the usual conditions designed to insure that the trucking service shall remain auxiliary to rail service, the Interstate Commerce Commission, Division 5, has authorized the Seaboard Air Line to extend its common-carrier highway operations over a route between Tampa, Fla., and Sebring. The case was docketed as No. MC 86687 (Sub-No. 19), Seaboard Air Line Railway Company, Tampa Extension.

N. E. Shippers Board to Meet March 14

The New England Shippers Advisory Board will hold its 31st regular and 15th

annual meeting in the Copley-Plaza hotel, Boston, Mass., on March 14. Gerrit Fort, executive assistant, Boston & Maine, and Richard Parkhurst, vice-chairman, Boston Port Authority, will discuss the St. Lawrence Seaway treaty at the luncheon. The meeting of the Loss & Damage Prevention committee will be held on March 13 at 2 p. m.

Wheeler Asks Continuance of Rail Finance Committee

Senator Wheeler, Democrat of Montana and chairman of the Senate interstate commerce committee, has introduced in the Senate S. Resolution 240, which would continue for the duration of the next Congress, the Seventy-seventh, the rail finance investigating committee which has been functioning for the past several years. According to the resolution, the committee would be allowed to sit during the period of the Congress and its recesses, and would be authorized to expend whatever funds have already been allotted to it.

Senator Wheeler has announced that the committee plans no new projects or hearings, but will simply wind up its work of publishing reports, spending funds already appropriated for this activity.

Brilliant U. P. Brochure Publicizes Los Angeles Properties

The Union Pacific's Industrial department has prepared a 16-in. by 11½-in., 34-page brochure printed in a brilliant red-and-yellow motif describing tracts for industrial development owned by the road or adjacent to its tracks in the Los Angeles, Cal., Long Beach area. Introduction to the district is given by text summarizing power and transportation facilities, labor, natural resources, markets, etc., and a large 6-page map showing the tracts in relation to highways and railroads. Then for each tract there is presented a full-page aerial photograph with the U. P. properties outlined in red, a detailed map and facts regarding improvements, rail service, and present tenants. The whole is bound in stiff cardboard strikingly decorated.

McBride Honored For Research on Feedwater Heater

Thomas C. McBride, consulting engineer, Worthington Pump & Machinery Corp., with headquarters at Philadelphia, Pa., was nominated a "Modern Pioneer" by the National Association of Manufacturers for his work in improving locomotive feedwater heaters, as was reported in last week's issue. Mr. McBride designed an exhaust-steam locomotive feedwater heater of the open type, which was not subject to scale and needed but a single pump for its operation. He also designed a feedwater heating system the components of which are divided for convenience in location on large locomotives, for a proper distribution of weight and for space economy. His patents thereon have been assigned to Worthington.

Mr. McBride was born in Philadelphia in 1868 and graduated from the University of Pennsylvania with the degree of Mechanical Engineer in 1889. The following year he became a draftsman with the Bald-

win Locomotive Works and in 1891 became draftsman and superintendent of shops, Link Belt Engineering Company. In 1896, he was appointed sales manager, Snow Steam Pump Works, where he remained until 1899 when he went with Worthington, as sales manager, at Phila-



T. C. McBride

delphia. In 1922, he became manager of the railroad department and in 1926 was appointed consulting engineer, which post he holds today. He is the author of several papers on condensers and air leakage in technical publications and was awarded the Longstreth medal for his invention of a locomotive feedwater heater.

Retirement Board's "Review" to Go on Monthly Basis

Publication of the Railroad Retirement Board's "Weekly Review" ceased with the March 2 issue. Information about operations of the Railroad Retirement Board, the last issue of the weekly said, will in the future appear in a monthly bulletin, publication of which will begin in April.

The monthly will contain statistical and economic data on retirement and unemployment insurance; summaries of Board decisions, and of legal rulings, decisions, and interpretations; information regarding important administrative changes in the Board's organization, procedures, and personnel; and "other material of interest concerning the acts administered by the Board." The publication will also contain brief articles about the background and operation of the acts.

B. & O. Diesel On the Job 365 Days In a Year

When the Baltimore & Ohio's locomotive No. 56 pulled into Washington, D. C., with the Capitol Limited on February 25, it completed its 365th daily run between Chicago and Washington for a full year without a miss, for a total of more than 280,000 miles. Its performance is claimed to be a new all-time world record of 100 per cent availability for a 12-month's

period. The 772-mile run of the Capitol Limited calls for a regularly scheduled average speed of more than 56 m. p. h.—including ten regular stops—over a route which includes some of the heaviest mountain grades in the East.

The train regularly consists of from 11 to 15 Pullman cars of standard weight. In completing the 365 consecutive trips locomotive No. 56 made its arrival in the morning, and departure the same afternoon at each terminal, so that the longest period during the entire year in which it was idle for servicing was 6½ hours. No. 56 is a 3600-hp. unit built by Electro-Motive Corporation in 1938.

Asks \$50,000,000 Authorization for Crossing Work

Judge R. V. Fletcher, vice-president and general counsel of the Association of American Railroads, appeared at the March 6 session of hearings before the House committee on roads on H. R. 7891, the federal-aid highway authorizations bill for the fiscal year ending June 30, 1942. Judge Fletcher advocated an authorization of \$50,000,000 for grade crossing elimination and protection work.

Stressing the need for a continuation of the grade-crossing program, the A. A. R. general counsel asserted that there is no better way to provide unemployment relief and promote highway safety. In the former connection he suggested that the unemployment problem is largely one involving unskilled and common labor, much of which is employed on grade-crossing work.

A. S. M. E. Chicago Section To Hear C. L. Eksergian

The next meeting of the American Society of Mechanical Engineers, Chicago Section, sponsored by the Transportation Division, (Civic Opera Building, Chicago, March 29, 7:30 p. m.) will be devoted to disc-type brakes as applied to passenger car trucks with a view to take the braking load off the car wheels and permit making reasonable stops from modern high speeds without overheating the wheels. The principal address on "Truck Brakes for Modern Demands" will be presented by C. L. Eksergian, chief engineer, Budd Wheel Company, who will describe the results of extensive service tests of this type of brake on the C. B. & Q. and other roads. Other manufacturers, representatives and railroad officers interested in this subject have been invited to be present and participate in the discussion.

January Locomotive Shipments

Twenty-seven railroad locomotives were shipped during January and unfilled orders for 179 were on hand at the close of the month, according to reports received by the Department of Commerce's Bureau of the Census. These figures compare with the 20 shipped in January, 1939, and unfilled orders for 100 reported at the close of that month.

January, 1940's total included one steam locomotive and 22 Diesel-electrics for domestic service and three steam for export, as compared with three steam, 16

Diesel-electrics one "other" (steam-electric, Diesel-mechanical, gasoline-electric or gasoline-mechanical), all for domestic service, in the first month of last year.

Data furnished by the Car Service Division, Association of American Railroads, on locomotive building in railroad shops show that two such locomotives, both steam, were placed in service in January; unfilled railroad-shop orders at the close of January totaled 54 locomotives—34 steam and 20 electrics.

A. A. R. Directors Vote to Rescind Resolution

Directors of the Association of American Railroads have voted to rescind the resolution condemning joint rates and routes with motor carriers, which formed the basis of the pending anti-trust action brought against the A. A. R. by the Department of Justice. As a result of the action by the directors, it is expected that the government will drop the case. The suit, which was of a civil nature, was directed against the Association, its officers, directors, and member roads, and was instituted October 25, 1939. The charge was made in bringing the action that the railroads, in refusing to enter into joint rates and routes with the motor carriers had violated the Sherman Anti-trust Act.

The member roads of the A. A. R. have been notified of the directors' action and have been asked to signify, if they so desire, their assent. It was pointed out that this action was intended to give the member roads a completely free hand to use their own judgment and managerial discretion individually in dealing with motor carriers, unrestrained by any agreement attributable to the resolution.

February Employment 5.45 Per Cent Above 1939

February rail employment, with 993,022 at work, was on a 5.45 per cent higher level than in February, 1939, while there was a 0.42 per cent increase over the mid-January figure, according to the Interstate Commerce Commission's compilation based on preliminary reports. The index of railway employment, based on the 1923-1925 average as 100 and corrected for seasonal variation, stood at 57.8 for February, as compared with 57.7 for January and 54.8 for February, 1939.

February employment in all groups was above that of the previous year's comparable month, the largest increases being the 8.48 per cent rise in train and engine service employees and the 8.20 per cent increase in the maintenance of equipment and stores group. Meanwhile, all groups were above mid-January, except maintenance of equipment and stores employees and transportation employees (other than train, engine, and yard men), down one per cent and 0.09 per cent respectively. The largest increase over January was in the maintenance of way and structures group which was up 2.89 per cent.

Freight Car Loading

Revenue freight car loading for the week ended March 2 totaled 634,410 cars, the Association of American Railroads

announced on March 7. This was an increase of 39,378 cars, or 6.6 per cent, above the preceding week, which included the Washington's Birthday holiday, an increase of 39,986 cars, or 6.7 per cent, above the corresponding week last year and an increase of 81,518 cars, or 14.7 per cent, above the comparable 1938 week.

As reported in last week's issue, loading of revenue freight for the week ended Saturday, February 24, totaled 595,032 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings			
For Week Ended Saturday, February 24			
Districts	1940	1939	1938
Eastern	131,974	124,016	108,867
Allegheny	126,006	109,407	92,789
Pocahontas	44,843	40,439	35,028
Southern	92,766	90,156	85,589
Northwestern ..	68,301	64,523	61,920
Central Western ..	88,700	86,131	85,067
Southwestern ..	42,442	42,070	42,679
Total Western Districts	199,443	192,724	189,666
Total All Roads Commodities	595,032	556,742	511,939
Grain and grain products	31,223	28,879	30,215
Live stock	10,768	9,935	11,450
Coal	135,107	127,772	101,613
Coke	9,869	7,086	5,141
Forest products	30,146	25,493	25,819
Ore	9,696	7,883	6,818
Merchandise i.e.l.	133,908	133,973	134,938
Miscellaneous	234,315	215,721	195,945
February 24 ..	595,032	556,742	511,939
February 17 ..	607,924	576,645	535,866
February 10 ..	626,903	576,352	542,991
February 3 ..	657,004	573,127	564,740
January 27 ..	649,488	590,459	553,176
Cumulative Total, 8 Weeks	5,042,278	4,571,596	4,412,253

In Canada.—Carloadings for the week ended February 24 totaled 46,475, as compared with 45,400 in the previous week and 39,879 a year ago, according to the compilation of the Dominion Bureau of Statistics.

Total	Total Cars	Rec'd from	Loaded Connections
Total for Canada:			
February 24, 1940.....	46,475	23,941	
February 17, 1940.....	45,400	22,910	
February 10, 1940.....	49,734	24,721	
February 25, 1939.....	39,879	20,584	
Cumulative Totals for Canada:			
February 24, 1940.....	377,142	190,753	
February 25, 1939.....	317,846	167,734	
February 26, 1938.....	359,865	174,654	

Extruded Copper

A new process of producing copper wire, bar, tubing, strips, bus bars and similar forms has been announced by the Phelps Dodge Copper Products Corporation, 40 Wall Street, New York, N. Y. The principal advantage claimed for the product is that it can be bent on short radii without producing roughness which would in time damage insulation wound on the copper. Its uniformity and the absence of impurities is indicated by the fact that its conductivity is $\frac{1}{2}$ per cent greater than that of electrolytic copper produced by melting electrically deposited copper and casting billets for rolling into finished form.

The process consists of first electrolytically forming a highly crystalline and brittle deposit of copper on a cathode. The deposit is about $\frac{3}{8}$ in. thick. This is stripped from the cathode and compressed into a porous cylindrical billet (about 15 per cent void). Subsequently the billet is heated in a reducing atmosphere to a plastic condi-

tion, in which state it is put in a press and extruded under very high pressure into the desired form. The smaller sizes of wire are drawn in the usual manner from extruded rod. The new copper is known as "PDCP".

Rules Covering Sale of Scrip by Bus Lines

Examiner C. Garofalo has recommended in a proposed report that the Interstate Commerce Commission approve with one exception new rules and regulations proposed by bus-line members of the National Bus Traffic Association to cover fares and charges for scrip books and the exchange of coupons of interchangeable scrip books. The exception is the examiner's recommended finding that the rules be found unlawful to the extent that they provide for the extension of credit to purchasers of the scrip books.

Evidence in the case (docketed as I. & S. No. M-822 and embracing also No. MC-C-148) indicated that the chief use of the scrip comes from automobile transporters who thereby provide for the return of employees engaged in driveaway operations.

Retirement Payments in January

Total payments under the Railroad Retirement Act certified to the Secretary of the Treasury in the month of January amounted to \$9,503,580. Payments on employee annuities constituted 74.1 per cent of this sum or \$7,031,177, and pensions to former private pensioners of the railroads 22.6 per cent or \$2,152,521.

Of the remaining amount, \$211,767 or 2.2 per cent was paid out in lump-sum death benefits provided under the 1937 act, \$33,000 or 0.3 per cent in death benefit annuities under the terms of the 1935 act, and \$75,114 or 0.8 per cent to survivors of deceased annuitants who had made a joint and survivor election.

By the end of January total retirement payments from the beginning of operation amounted to \$259,753,256.

New certifications to the Treasury during January on all claims totaled, after adjustments, 1,814 on which monthly payments were \$109,588. During the month, 1,113 claims amounting to \$67,619 were terminated by death. After additions, terminations by death, and net adjustments for terminations other than by death, reinstatements, and recertifications, there were 139,395 claims in force at the end of January on which the monthly amount payable was \$8,782,234.

North Dakota Intrastate Rates

The Interstate Commerce Commission has found that rates imposed by Board of Railroad Commissioners of North Dakota for intrastate shipments of grain, grain products, and seeds, and transit provisions in connection therewith, other products of agriculture, and animals and their products, other than livestock and potatoes, do not cause any undue discrimination against interstate commerce. Commissioner Rogers wrote the majority report in the proceeding (No. 28153), and Commissioner All-dredge wrote a brief separate expression, dissenting in part. Chairman Eastman and

Commissioner Mahaffie joined in the Alldredge expression, while the dissents of Commissioners Lee and Miller were noted.

Commissioner Alldredge thought it important for the commission to follow "a consistent policy" in these intrastate rate cases, and he expressed his fears that a comparison of the present decision with a recent one involving Idaho intrastate rates "would disclose an inequality." In the latter, he went on, the commission struck down rates on which the variations in revenue as between intrastate and interstate rates "were much smaller than the differences disclosed in this record." Applying the principal that "our concern in such cases should be directed to substantial differences in rates which create a real discrimination against interstate commerce," Mr. Alldredge thought the majority was correct as to all commodities except grain, grain products and seeds.

Central of Georgia Gets Rid of Unprofitable Bus Route

Transfer of the Central of Georgia Motor Transport Company's bus operating rights on a route between Millen, Ga., and Augusta to Southeastern Stages, Inc., has been approved by the Interstate Commerce Commission, Division 4. The decision does not, however, approve of provisions in the proposed transfer agreement which appeared to the commission to retain in the Central of Georgia affiliate "a reversionary interest for exercise under certain conditions."

These "reversionary-interest" provisions stipulated that the operating rights, for which no money was being paid by Southeastern, would be retransferred to the vendor "if and when applicant shall permanently discontinue its operations between Millen and Augusta, or if the service rendered by it is deemed by the receiver (of the Central of Georgia) to be unsatisfactory, or upon termination of the receivership of the railroad." The arrangements covered by the transaction, the report explains, would permit Southeastern, through a slight rearrangement of its present schedules, to connect with Central of Georgia trains and thus accommodate both its own patrons and those of the railroad "with little increase in operating costs." Meanwhile the railroad affiliate "would be relieved of what it considers a burdensome operation."

More Exhibitors at N. R. A. A. Show—March 11-14

Supplementing the list of manufacturers who will display their products at the twenty-ninth annual exhibit of the National Railway Appliances Association to be held at the International Amphitheatre, Chicago, on March 11-14, in conjunction with the convention of the American Railway Engineering Association, as was presented in the *Railway Age* of December 30, 1939, Page 1012, 17 additional companies have arranged to exhibit their products, bringing the total number of exhibitors to 82. This is 14 more companies than exhibited in 1939, and includes several companies that have not exhibited before, as well as a number which have not been represented

for several years. The names of the additional companies follow:

Alcoma Railway Equipment, Chicago.
Ardeco Manufacturing Company, Hoboken, N. J.
Broderick & Bascom Rope Company, St. Louis, Mo.
Chicago Pneumatic Tool Company, New York.
Dimick-Mosher Products Company, Boston, Mass.
Hayes Track Appliance Company, Richmond, Ind.
Hogan, George M., Chicago.
Jacobsen Manufacturing Company, Racine, Wis.
Loftus & Son, La Crosse, Wis.
Morrison Railway Supply Corp., Buffalo, N. Y.
Moto-Mower Company, Chicago.
Nichols, Geo. P. & Bros., Inc., Chicago.
Power Ballaster Co., Chicago.
Reade Manufacturing Company, Jersey City, N. J.
Schramm, Inc., West Chester, Pa.
Wilson Welder & Metals Co., Inc., North Bergen, N. J.
Young & Greenawalt, Chicago.

The Illinois Central Reports to Its Employees For 1939

The third annual report of the Illinois Central to the members of its "family" is an informal, chatty discussion of the year and the outlook by President J. L. Beven. Whereas the special reports for the two preceding years have dealt mainly with explanations of items of revenues and expenses in order to acquaint employees with this important side of the picture, it was felt that the definitions have been well enough established by this time to permit of a more simple review of the highlights in the 1939 report.

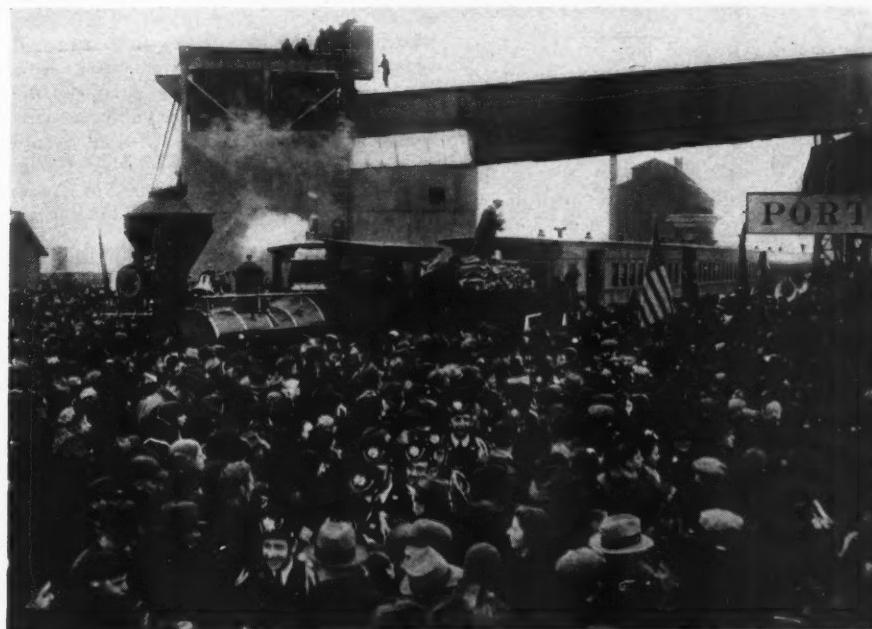
Mr. Beven warns his readers that comparisons of loss or gain from one year to the other are misleading as to the absolute financial health of the railroad and reminds them that the 1938-1939 comparison of Illinois Central traffic should not arouse an "exaggerated sense of relief." Speaking of net income for 1939, he points out that while it looks large in the bulk, it should be measured on the ratio of 2 cents to each dollar of receipts and .33 cent for each \$100 of investment. He adds that total net income was not sufficient to declare a dividend "to the owners of our property who have now gone eight consecutive years without any return on their money." I. C. stock bearing a par value of \$100 per share now sells for about \$12.

Discussing wage payments, President Beven points out that Illinois Central workers collected an average of \$1,828 apiece for the year's work, an increase per man of \$66 over the average payment in 1938. Also, 1,541 workers were added to the payroll who, with their dependents would equal the entire population of a city of about 6,000. The writer also reminds employees that the company's operating expenses were increased more than \$500,000 during 1939, through back pay resulting from awards of the National Adjustment Board, and that operating expenses are further increased by some \$250,000 annually from changes in methods to match the interpretations of various wage contracts by the Adjustment Board.

As for the outlook, Mr. Beven declares that his travels lead him to believe that the railroads have a lot more friends today than they once had, part of which is traceable to the ability which railway managements and employees have publicly exhibited to co-operate with each other for the good of the industry as a whole. He adds that "some of our newer competitors moreover are beginning to wear out their welcome as the public counts up the total costs in subsidies as well as in freight and passenger charges."

Grand Trunk Train Covers Edison's News Route

A 90-year old train carrying a baggage car which Thomas A. Edison used as his headquarters when, as a "news-butcher," he vended his wares on Grand Trunk Western trains between Detroit, Mich., and Port Huron, ran once again from the automobile city to the St. Clair river on February 10 to mark the 93rd anniversary of the birth of the great inventor and the premier showing of the Metro-Goldwyn-Mayer film "Young Tom Edison." The equipment, which comprised the woodburner "Sam



Crowds Greet the "Sam Hill" and the Edison Train at Port Huron, Mich.

Hill," the baggage car and two coaches were loaned by Henry Ford for the occasion and were the same as made a historic trip between the two cities almost 25 years ago carrying President Harding, Mr. Edison, Mr. Ford and Harvey Firestone.

The "Sam Hill" operated out of the Brush street station for a way under its own steam, but for the remainder of the trip it was coupled behind a Grand Trunk No. 6400 streamliner. Ceremonies wound up with a big celebration at Port Huron.

U. S. Supreme Court Orders

The Supreme Court of the United States has noted probable jurisdiction in the case wherein the United States District Court for the Northern District of Illinois had invalidated the Interstate Commerce Commission's action in striking down tariffs whereby certain motor carriers undertook to publish as "proportional" rates, those arrangements with forwarders formerly covered in forwarder tariffs which had been ordered stricken from the commission's files. The commission's decision in the proceeding docketed as I. & S. No. M-247 and was reviewed in the *Railway Age* of August 12, 1939, page 266.

In another case of the United States v. American Trucking Association, Inc., the Court noted probable jurisdiction and will review the question of whether the Interstate Commerce Commission or the Wages and Hour Division of the Department of Labor has jurisdiction over those motor carrier employees who are not directly connected with the safety of operation. The commission had contended that its authority over hours of service applied only to drivers, while the A. T. A. filed suit to force the commission to take jurisdiction over all motor carrier employees. A special three-judge court in Washington, D. C., decided in favor of A. T. A. and against the commission and the Wages and Hours Administration, holding that the Motor Carrier Act embraced all motor carrier employees.

California Floods Damage Rail Lines

Torrential rains and high winds, which continued for four days, seriously disrupted transportation in northern and central California on February 26 and caused several serious washouts throughout the affected territory. The main line of the Western Pacific through the Feather River canyon was blocked for 48 hr. because of slides and minor washouts, as was the secondary line between Keddie, Cal., and Bieber, where connection is made with the Great Northern.

The San Francisco-Portland trains of the Southern Pacific were detoured for several days via Sacramento, Fernley, Nev., Alturas, Cal. and Klamath Falls, Ore., because of several breaks in the main line in California, which included a bridge washed out at Motion, near Dunsmuir; high water over the tracks at Dunsmuir, a slide at Pollock, and a wash-out on the main line 19 miles south of Pollock. The San Francisco-Santa Cruz trains of the S. P. had to be detoured via Watsonville because of a slide at Alma. A 900-ft. washout occurred on the Northwestern Pacific

at Scotia, but the N. W. P. maintained through service by stopping its trains at Ukiah, and using buses for detouring the passengers around the slide. Despite very unfavorable weather conditions, the Southern Pacific was able to keep its main transcontinental line open.

Serious flood conditions were also encountered by all lines in the San Joaquin Valley in central California. However, except for unimportant delays due to slow orders, these lines were able to maintain service. Suburban train service between San Francisco and the East Bay cities was also interrupted for 24 hr. on the Key System, when a flooded underpass caused the suspension of all service on that line. The commuters were, however, handled on the S. P. interurban trains with a minimum of delay.

Quebec Board Fails to See Public Benefit in Truck Operation

The Quebec Transport and Communications Board, which was reported in last week's *Railway Age* as having denied a permit to a motor carrier for operation between Montreal and New York, declared in its order:

"In this case we have had to consider long distance carriage which in our opinion should be done by the railways. The Board is convinced that the railways are able to effect in a satisfactory manner transportation in a general way of all merchandise between Montreal and New York, including perishable goods such as fish, fruit and vegetables. It is true that the petitioners have attempted to establish with a measure of success that an economy of time and money might result from the carriage of these goods by trucks, but it was not shown that the public would benefit thereby. Moreover it does not seem that the tonnage of perishable goods available for carriage is sufficient to justify the establishment and the maintenance of a truck service limited to these products."

Not only did the Board deny the petition for a general permit by Carl's Transportation Company, Ltd., but as well indicated its denial of petitions of 14 other trucking companies to carry fish, fruit and vegetables between Montreal and New York or between the former point and the international border. Furthermore, the board reversed decisions "in like cases" rendered previously by the Quebec Public Service Commission (abolished in April, 1937, and succeeded by the Board).

Aluminum Co. Installs 3,000,000-Lb. Testing Machine

A high-capacity, precision-testing and metal-working machine was demonstrated before a group of testing engineers, government officials, railway officers, and industrialists at the Research Laboratories of the Aluminum Company of America, New Kensington, Pa., on March 2. The new machine, called the Templin precision metal-working machine after R. L. Templin, chief engineer of tests, the Aluminum Company of America, was built by the Baldwin-Southwark Corporation and is capable of exerting a force of one million pounds in tension and of three million pounds in compression. While not the

largest testing machine in existence, it is the most powerful. In compression, it can exert its full force up to a speed of 36 in. a min., which requires a 300-hp. motor pumping 270 gallons of oil per min. against a pressure of 1,800 lb. per sq. in. For testing large structural specimens a pump driven by a 20-hp. motor delivers oil against the same maximum pressure at the rate of 18 gallons per minute.

Prior to the installation of the new machine the largest materials testing machine in operation in the company's laboratories was a 300,000 lb. tension and compression machine. A new program of research for the improvement of fabricated products as well as for the development of new ones, requires experimental work using suitable full-size equipment operating under precisely controlled conditions which can be obtained only in the laboratory. The new machine can be operated as an extrusion, forging or forming press. Auxiliary equipment permits defining within close limits the relationships existing between the various forces in the plastic flow of aluminum through a wide range of conditions.

The Templin machine is capable of weighing a load of three million pounds with an error less than two parts in a thousand and has a sensitivity such that the weight of a man moves the indicator over nearly $\frac{1}{4}$ in. of arc in the low range. The hydraulic stroke has a maximum range of 36 in., but the heads may be adjusted by motor-driven screws through a maximum height of 186 in. In tensile testing a maximum height of 150 in. is available in addition to the 36-in. ram stroke.

Delegate Opposes Relocation of Alaska Railroad

During the discussion of the Interior Department appropriation bill for the fiscal year ending June 30, 1941, in the House on March 5, Anthony J. Dimond, delegate from Alaska, made some observations on the operation of the Alaska railroad. Discussing the transport problem in the territory, Mr. Dimond asserted that "At the present time we do not need any more railroads in Alaska, but we do need a great deal in the way of highways or motor roads." He then went on to point out to the House that in the Territory there are now less than 2,500 miles of highway, most of which is "of a comparatively simple type."

After pointing out that the bill contains no appropriation for the Alaska Railroad, other than an appropriation of the earnings of the road, Mr. Dimond said that the failure to make a sufficient appropriation to "really complete the construction of the Alaska Railroad and put it in a reasonably good operating condition is an economic mistake. If the railroad were thus completed in the true sense of the word there would never be need of making any appropriation for operation."

"Unfortunately," he continued, "a suggestion has now been made with respect to the Alaska Railroad that is, to my mind, clearly fantastic, and that is the proposal to change the terminus of the road from Seward, its present seaboard terminus, to Portage Bay, Alaska. The general manager of the road has estimated

the expense of the suggested change to be about \$5,000,000, but I have good reason to believe that the cost of making the shift to Portage Bay would be in excess of \$10,000,000. There is not, in my opinion, the slightest excuse or justification for entertaining such a proposal. It would wreck the city of Seward. It cannot be defended by the volume of traffic which is now carried on the railroad nor the volume thereof which any man can foresee for the next quarter of a century. The interest alone on even the lowest estimate of the cost of making the change would more than pay the increased expense of operation over that part of the line which it is proposed to abandon." "It is unthinkable to me," he concluded, "that with the other appropriations cut to the very bone on the grounds of economy, money should be appropriated for a project which even in more prosperous times would be completely devoid of merit."

Pension Board's 1938-39 Report

(Continued from page 466)

age at retirement was 66.3. This decrease in the average age at retirement is due mainly to the fact that at the time the railroad retirement system was established there were relatively large numbers of employees in active service who were considerably above age 65, according to the report. The average age of annuitants whose annuities began to accrue after age 65 was 69.3 years. The average age of annuitants who retired for disability after 30 years of service was 59.8 years.

The median age in 1937 of those railroad employees whose age is known was a little more than 41 years; that is, one half the employees were aged 41 or younger and the other half, more than 41. Considerable differences by age were found in various occupational groups with the median age for the laborer groups considerably lower than for the skilled and supervisory occupations. The median age for laborers is between 33 and 37 years, whereas that for employees in all other groups, except clerical and helper-apprentice, is about 43 years. The report states that "these striking differences in age between employees in positions requiring a high degree of skill and considerable responsibility and employees in jobs for which the qualifications are not as rigorous probably reflect to a large extent the differences in the length of service in the industry."

The Board announced that through September service to 4,650 persons or organizations had been held creditable toward annuities under the retirement acts. Since 1,092 of these were active employers on or after January 1, 1938, that number is covered by the unemployment insurance act. Class I railroads constituted 13.1 per cent of this number; other railroads, 40.5 per cent; switching and terminal companies, 21.7 per cent; electric lines, 7.2 per cent; express and sleeping car companies, 0.4 per cent; railway associations, 9.2 per cent; national railway labor organizations, 2.3 per cent; car loan companies, 0.8 per cent;

and miscellaneous companies, 4.8 per cent.

Wages were credited under the retirement and unemployment insurance systems to 1,538,280 individual employee accounts in the calendar year 1938, the report states. This compares with 1,995,000 credited in the previous calendar year. Of the employees with credited compensation for 1938, 168,684 had no compensation credited for 1937. The report reviews the administrative operations under the Railroad Unemployment Insurance Act, which is administered by the Railroad Retirement Board. Benefits were first payable under this act after July 1 of the current fiscal year.

A recasting of the Board's administrative organization for the purpose of integrating its work under the retirement acts and the unemployment insurance act is reviewed in the report. A highly significant feature of the operating machinery is the function of claims-taking assumed by co-operating carriers, it is stated. Agreements authorized in the unemployment insurance act between the Board and the carriers provide for compensatory payments for this work. It is estimated that it would cost four times as much for the same work if performed directly by the Board because of the necessity of locating employees at points where the volume of work would not justify full-time employment. This service is performed by local supervisory employees of the carriers who, in the first instance, actually receive the claims, and higher placed employees of the same carriers who transmit them to the appropriate regional offices of the Board for processing and certification.

The report states "although operations have been under way for less than six months, the railroads' unemployment insurance claims agents and countersigning agents to date have handled more than half a million claim forms with accuracy and expedition. The personal knowledge which railroad supervisors possess of their subordinates has proved invaluable." And further, "even more important than the economy of the cooperative plan is that it brings prompt and effective handling of claims. In practice, the plan operates so that an unemployed applicant who wishes to file a claim for benefits can go directly to the supervisor on his last job, or if located some distance away the place of his last job, he can file a claim at the nearest railroad office."

St. Lawrence Seaway Opposed

Senators and congressmen opposing the proposed St. Lawrence Seaway got a bit of space in recent issues of the Congressional Record for publication of resolutions and other communications which they had received in support of their stand from "the folks back home."

Into the appendix to the February 29 issue of the Record went a letter which Representative Van Zandt, Republican of Pennsylvania, had received from the Altoona Works Local of the Brotherhood of Railroad Shop Crafts of America. The shopmen condemned the project as one which could only be pushed at the expense of two basic American industries—bituminous coal and the railroads. In offering

the letter Mr. Van Zandt asserted that "more railroad men are to lose their jobs" if the treaty is ratified by the Senate.

On March 4 Senator Barbour, Republican of New Jersey, offered for incorporation in the Record a concurrent resolution of the New Jersey legislature, memorializing the Senate not to ratify the pending treaty. The concurrent resolution asserted, among other opposition arguments, that the completion of the project "is intended to decrease the movement of traffic via United States rail lines, and, if successful, would be detrimental to our transportation system, its employees, and the public in general." Also, it would "represent an added burden to taxpayers and would create an unregulated and subsidized means of transportation."

In the appendix to that same March 4 issue appeared a speech by Representative Martin J. Kennedy, Democrat of New York, sponsor of the pending House Resolution 360, which calls for an inquiry into all matters pertaining to the seaway. Mr. Kennedy called attention to a mass meeting held on February 28 in Albany, N. Y., where "more than 80 groups" embracing "every form of commercial activity" in New York voiced a formal protest against ratification of the treaty. The New Yorker went on to express the hope "that nothing will be done in the matter of the making of this treaty, at this time, because I believe it would be a useless expenditure of money, but, more than the wasting of money, is the possibility that it might affect our neutrality."

Actual Rates of Contract Carriers

The Interstate Commerce Commission has further postponed until April 15 the deadline-date for the filing by contract motor carriers of returns to the questionnaire issued in connection with the Ex Parte No. MC-27 investigation of Central Territory contract carrier rates. The order covering the postponement also promulgates a new questionnaire form embodying some modifications of the original which drew a protest from the Contract Carrier Division of American Trucking Associations, Inc.

At the same time the commission also issued another order, substituting new language for certain passages in the original report in Ex Parte No. MC-9, which report embraced also the questionnaire phase of the Ex Parte No. MC-27 case. As noted in the *Railway Age* of December 2, page 858, the order covering the Ex Parte No. MC-9 phase of the proceeding required that contracts showing actual as well as minimum charges and other information concerning the operations of contract truckers subject to the Motor Carrier Act shall be open to public inspection after April 1. The substitute paragraphs which the commission incorporates into its previous decision read as follows:

"One of the most basic rights under our laws is the right to evidence. Every litigant has the right to produce, or have produced, any and all documentary evidence material for the purposes of his case, unless some exception is shown to the general rule. Since proof of the *actual charges* of contract carriers is material in an issue

respecting the lawfulness of such charges, it must follow that the right of the interested parties to inspect documents filed with us, which contain such charges, is superior to any claim of business privacy.

"Wholly apart from the question of whether or not the statute requires us to find that the actual charges of contract carriers are unlawful as a jurisdictional prerequisite to the exercise of our power to determine reasonable minimum charges of contract carriers, we are convinced that the public interest and attainment of the policy laid down for us under the Motor Carrier Act require that we deal with the actual rates rather than with minimum rates, since the latter may be, and in many cases admittedly are, mere paper rates."

Meanwhile the commission has denied the petition of the National Industrial Traffic League for reconsideration of the Ex Parte No. MC-9 decision; and it heard oral argument last week in Ex Parte No. MC-33 which involves proposed changes in the tariff rule as applied to contract carriers. One of the issues in the latter proceeding is whether the commission has the power and should require the schedules of contract carriers to be filed on 30 days notice.

S. P. Affiliate Gets California Truck Routes

The Interstate Commerce Commission, Division 5, has conditionally authorized the Pacific Motor Trucking Company, affiliate of the Southern Pacific, to operate a common-carrier trucking service over irregular routes between specified California points. The conditions attached to the grant of authority are the usual ones imposed in cases involving railroads or their affiliates—to insure that the service by motor vehicle will be "auxiliary to or supplemental of the rail service of the Southern Pacific or Pacific Electric or both." The case was docketed as No. MC-7876 (Sub-No. 30).

The Canadian Roads in January

The Canadian Pacific has reported January net operating revenue at \$1,828,505, an increase of \$1,367,503 over the \$461,003 reported for that month of 1939. Gross for the month at \$12,244,544 was higher by \$2,545,482, while the operating expense figure at \$10,416,039 showed an increase of \$1,177,979.

The Canadian National's January net operating revenues were \$1,671,797, as compared with a net operating deficit of \$608,195 for January of last year, an improvement for the current year of \$2,279,992. Operating revenues for the month showed an expansion of \$4,106,730, while the increase in operating expenses was limited to \$1,826,000, resulting in the net earnings as noted. January gross of \$17,601,735 was the best for that month since 1930, while net was the best since 1929.

Equipment Depreciation Orders

Equipment depreciation rates for four railroads, including the Norfolk & Western and the Western Maryland, have been prescribed by the Interstate Commerce Commission in a new series of sub-orders and modifications of previous sub-orders

in No. 15100, Depreciation Charges of Steam Railroad Companies. The other two roads involved are the Willamina & Grand Ronde and the Clarendon & Pittsford.

Prescribed rates for the N. & W. are as follows: Steam locomotives, 3.63 per cent; other locomotives, 3.08 per cent; freight-train cars, 3.55 per cent; passenger-train cars, 3.31 per cent; floating equipment, 3 per cent; work equipment, 3.07 per cent; miscellaneous equipment, 16.5 per cent. For the Western Maryland the prescribed rates are as follows: Steam locomotives, 3.28 per cent; freight-train cars, 3.58 per cent; passenger-train cars, 2.49 per cent; floating equipment, 2.47 per cent; work equipment, 3.71 per cent; miscellaneous equipment, 9.91 per cent.

year (no passenger-train cars were then ordered). These purchases bring the total for the two months of 1940 thus far to 46 locomotives (24 steam and 22 Diesel-electric), 1,381 freight cars and 20 passenger-train cars, as compared with 11 locomotives (all Diesel-electric) 2,007 freight cars and 47 passenger-train cars ordered in the corresponding two months of 1939.

As of March 2, there were inquiries outstanding for, or contemplated purchases of, a total of 52 locomotives (30 steam and 22 Diesel-electric); 3,240 freight cars and 62 passenger-train cars. The carriers ordered a total of 1,450 tons of steel rail during February, which brings the total ordered for the year thus far to 74,392 tons, as compared with 331,830 tons ordered during the corresponding two months of 1939.

Milwaukee Budget \$8,000,000

The 1940 improvement budget of the Chicago, Milwaukee, St. Paul & Pacific, which provides for the expenditure of \$8,000,000 has been approved by the federal district court. A total of 27,800 tons of rails, track fastenings and ballast, ordered in October, will be laid, the total cost being \$1,600,000.

A total of 2,000 steel box cars and 25 steel, wood-lined cabooses will be built in company shops, and 25 steel coaches will be remodeled and air conditioned. Orders have been placed with the Milwaukee shops, and construction of this equipment will be started soon.

Ten steam and 18 Diesel-electric locomotives are included in the budget. Of these ten 4-8-4 type locomotives for fast freight service have been ordered from the Baldwin Locomotive Works while orders for the Diesel-electrics have been placed as

Equipment and Supplies

Power Purchases Ahead in Feb.

Carriers buy 18 locos. compared with 3 in 1939; order 1,172 freight cars

Orders were placed in the United States during February for a total of 18 Diesel-electric locomotives; 1,172 freight cars and 15 passenger-train cars for domestic service, as compared with 3 locomotives; 2,004 freight cars ordered in February of last

Domestic Equipment Orders Reported in Issues of the Railway Age in February 1940 (Including March 2)

LOCOMOTIVES

Date	Name of Company	No.	Type	Builder
Feb. 10	Oliver Iron Mining Co.	7	Diesel-electric	American Locomotive Co.
		3	Diesel-electric	Baldwin Locomotive Works
Feb. 17	Wabash	1	Diesel-electric	American Locomotive Co.
		1	Diesel-electric	Electro-Motive Corp.
Feb. 17	Northern Pacific	1	Diesel-electric	Baldwin Locomotive Works
		3	Diesel-electric	Electro-Motive Corp.
Mar. 2	Ft. Worth & Denver City	1	Diesel-electric	Electro-Motive Corp.
(C. B. & Q. subsidiary)				
Mar. 2	Colorado & Southern	1	Diesel-electric	Electro-Motive Corp.
(C. B. & Q. subsidiary)				

FREIGHT CARS

Date	Name of Company	No.	Type	Builder
Feb. 3	Western Maryland	30	Caboose	Company Shops
Feb. 24	United States War Dept.	24	Box	Greenville Steel Car
		6	Flat	Haffner-Thrall Car Co.
Feb. 24	New York, Chicago & St. Louis..	50	Covered Hopper	American Car & Foundry
		10	Gondola	Pullman Standard
Mar. 2	New York Central	500	Covered Hopper	Despatch Shops, Inc.
Mar. 2	General American Transportation Corp.	500	Refrigerator	Company Shops
Mar. 2	Atchison, Topeka & Santa Fe ...	27	Ore	Pressed Steel
Mar. 2	St. Louis Refrigerator Car Co. ...	25	Refrigerator	Company Shops

PASSENGER-TRAIN CARS

Date	Name of Company	No.	Type	Builder
Mar. 2	Ft. Worth & Denver City	1	Mail-Express	Edward G. Budd Mfg. Co.
(C. B. & Q. subsidiary)		1	Baggage-Couch	Edward G. Budd Mfg. Co.
		2	Chair	Edward G. Budd Mfg. Co.
		1	Dining-Lounge	Edward G. Budd Mfg. Co.
Mar. 2	Colorado & Southern	1	Mail-Express	Edward G. Budd Mfg. Co.
(C. B. & Q. subsidiary)		1	Baggage-Couch	Edward G. Budd Mfg. Co.
		2	Chair	Edward G. Budd Mfg. Co.
		1	Dining-Lounge	Edward G. Budd Mfg. Co.
Mar. 2	Chicago, Burlington & Quincy ..	1	Diner-Lounge	Edward G. Budd Mfg. Co.
		3	Coach	Edward G. Budd Mfg. Co.
		1	Baggage	Edward G. Budd Mfg. Co.

Continued on next left-hand page

last what
end- merman replied that there were "not
enough good agents."

Freight Train Speed Sets New Record

Freight trains established a new high average level of speed last year, according to reports to the Assn. of American Railroads released today by J. J. Pelley, president.

The average distance traveled per freight train per day in 1939 was 401 miles, compared with 398 in 1938 and 386 in 1937. The gain from 1938 put the average speed at a point 62 per cent higher than in 1920.

This increase in the average speed of freight trains has been made possible

New and more powerful high-speed locomotives contribute to this improved performance.

LIMA LOCOMOTIVE WORKS,



INCORPORATED, LIMA, OHIO

follows: twelve 600-hp. with the Electro-Motive Corporation; one 1,000-hp., and two 600-hp. with the American Locomotive Company; one 600-hp. and one 300-hp. with the Baldwin Locomotive Works; and one 360-hp. with the General Electric Company.

The \$8,000,000 includes only 20 per cent of the cost of the new steam locomotives and box cars, the remainder being covered by Equipment Trust certificates to be taken by the R. F. C. The cost of the Diesel-electric locomotives is not included as these will be acquired on a lease-purchase plan as reported in the *Railway Age* of March 2.

The railroad's proportion of the cost of reconstructing the Mannheim road viaduct at Franklin Park, Ill., and the Central Avenue viaduct in Chicago, is included in the 1940 budget. Renewal of the bridge across the Missouri river at Kansas City, Mo., covered in the 1939 budget, and deferred in order to give consideration to alternate plans, may be undertaken this year.

LOCOMOTIVES

THE ATCHISON, TOPEKA & SANTA FE has placed an order with the Electro-Motive Corporation for four 2000-hp. Diesel-electric passenger locomotives.

THE LEHIGH VALLEY has ordered four Diesel-electric locomotives of 600 hp. each; three will be built by the Electro-Motive Corporation and one by the American Locomotive Company.

THE IRANIAN STATE RAILWAYS are inquiring for 12 to 24 locomotives of the 2-8-2 or 2-10-2 type. The headquarters of the company are at Teheran, Iran (Persia). Abbas Varnoue is acting director and engineer.

FREIGHT CARS

THE WABASH has been authorized by the district court to spend \$65,300 to improve and repair 100 box cars.

THE TENNESSEE COPPER COMPANY has ordered eight air-dump cars of 50 tons' capacity from the Pressed Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of February 3, page 265.

PASSENGER CARS

THE LONG ISLAND is rebuilding 96 of its passenger cars for shuttle service to the World's Fair. The work is being carried out at the Morris Park shops, Jamaica, N. Y.

IRON AND STEEL

THE LEHIGH VALLEY has placed an order for 1,000 tons of rail with the Bethlehem Steel Company.

MOTOR VEHICLES

THE DENVER, COLORADO SPRINGS & PUEBLO MOTORWAY has received delivery of three 37-passenger buses from the a. c. f. Motors Company.

Supply Trade

J. B. Templeton, vice-president of Templeton, Kenly & Company, Chicago, has been elected president to succeed W. B. Templeton, who is now chair-



J. B. Templeton

man of the board. J. B. Templeton has been associated with the company since 1928. After working in the shops and office, he entered the sales department and later became manager of the New York office. In 1935, when W. B. Templeton, who founded the firm in 1899, traveled to develop the company's business in foreign countries and remote parts of the world, J. B. Templeton assumed the duties of vice-president and sales manager.

Robert B. McColl, who has been elected vice-president, manufacturing, of the American Locomotive Company, New York, as was announced in the *Railway Age* of March 2 was born in 1882 at Kilmarnock, Scotland, where he attended the Kilmarnock Academy and the Science and Art College. After serving a special



Robert B. McColl

apprenticeship and working in various departments on the Glasgow & Southwestern, he was employed by Robert Stephenson & Sons, locomotive builders, Darlington, England, as a draftsman. In 1905 he went to

the Montreal Locomotive Works, Ltd., Montreal, and served in several departments, becoming assistant superintendent, then superintendent of works, and finally works manager. In 1917 he was appointed manager of the munitions department of the Eddystone Munition Company. After the armistice he returned to England and was appointed general manager of the locomotive department of the Armstrong Whitworth Company, in charge of the building and equipping of the locomotive works and of the sales, engineering and manufacturing of locomotives. Later, he became also general manager of the pneumatic tool department, gas and oil engine department, and director of the Works Board of all the company's plants which included shipbuilding and the construction of Diesel oil engines for marine work, etc. He came to the New York office of the American Locomotive Company in January, 1922, and in the following June was appointed assistant manager of the Schenectady (N. Y.) plant. In January, 1925, he became manager of the plant, and in 1931 was elected president and director of the McIntosh & Seymour Corporation, Auburn, N. Y., a division of the American Locomotive Company. When the McIntosh & Seymour Corporation was merged with the parent company, Mr. McColl was named vice-president of the American Locomotive Company, Diesel Engine Division. In 1936 he was elected president of Alco Products, Inc., a division of the American Locomotive Company. With the merger of Alco Products, Inc., with the parent company, Mr. McColl became vice-president of the American Locomotive Company, Alco Products Division. Mr. McColl is a member of the Institute of Mechanical Engineers, London, England.

E. K. Anderson has been appointed manager of the Dallas, Tex. office of Cutler-Hammer, Inc., Milwaukee, Wisc.

John E. Carroll, who has been in charge of the southwestern offices of the American Hoist & Derrick Company, St. Paul, Minn., has been appointed manager of the Chicago office.

Construction

CHICAGO & NORTH WESTERN.—A contract amounting to approximately \$35,000 has been awarded the J. T. McCarty Company, Davenport, Iowa, for the construction of a protection pier for the draw span of the Mississippi River bridge at Clinton, Iowa.

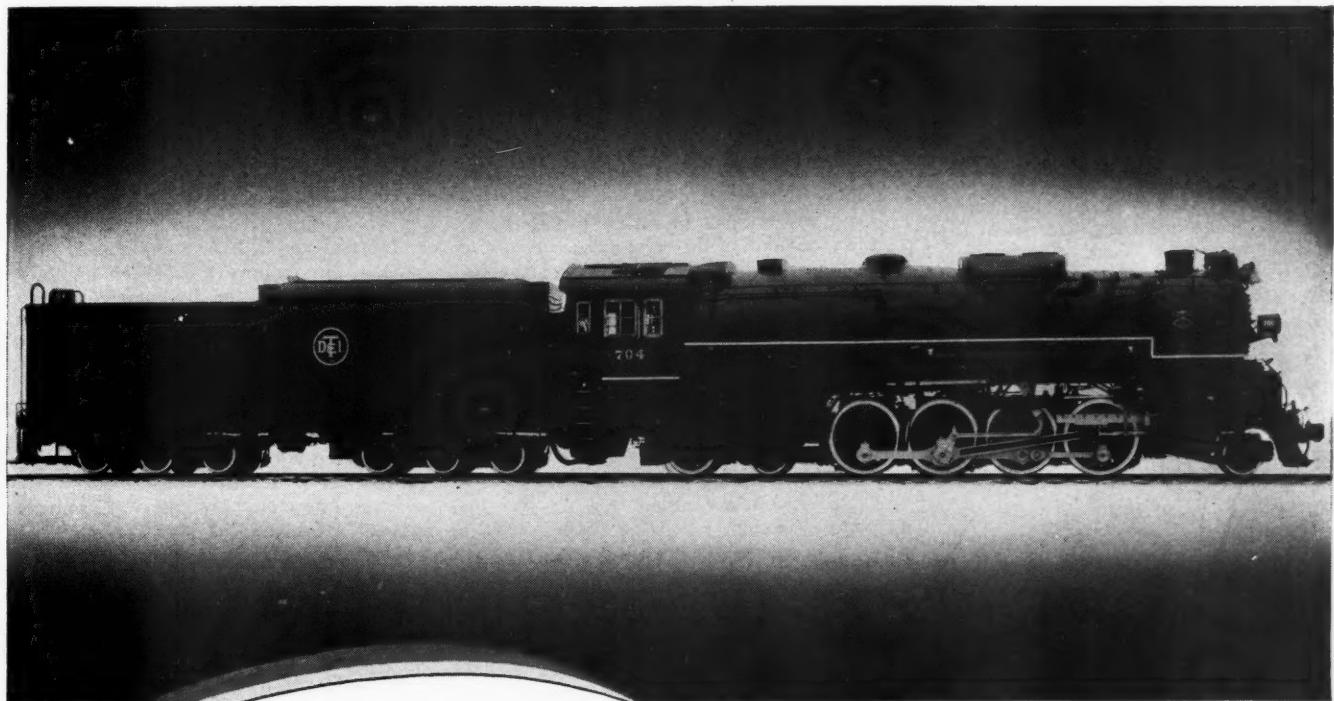
CHICAGO, ROCK ISLAND & PACIFIC.—A contract for placing concrete curtain walls around four piers of the Cimarron River bridge near Dover, Okla., amounting to approximately \$25,000, has been awarded the List & Weatherly Construction Company, Kansas City, Mo.

ST. LOUIS SOUTHWESTERN.—A contract has been awarded J. P. McNulty, Pine Bluff, Ark., for the restoration of 22 miles of track embankment, which will involve approximately 48,000 cu. yd.

Continued on next left-hand page

SMOOTH RIDING &

LOW MAINTENANCE



...ASSURED ON NEW



LOCOMOTIVES

The new 2-8-4 type steam locomotives recently delivered to the Detroit, Toledo & Ironton Railroad have been assured a smooth-riding, low-maintenance life by the application of Franklin Economy Devices. » » » Nosing and surging of the locomotive has been prevented by the application of the E-2 Radial Buffer. Driving box pound is avoided as wear will be cared for by Franklin Automatic Compensators & Snubbers. No. 8 Butterfly Type Fire Doors have been installed. Efficient, economical lubrication of the driving-box bearings is assured by application of the new Franklin No. 8 Combined Lubricator & Spreader. » » » Whether your power is new or old it deserves the protection of Franklin Economy Devices.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK
CHICAGO
MONTREAL

Financial

BALTIMORE & OHIO.—Equipment Trust Certificates.—This company has filed an amended application with the Interstate Commerce Commission in which it asks authority to reduce the amount of equipment trust certificates to be issued for the purchase of \$5,929,000 of new equipment from \$5,330,000 to \$4,750,000 and also to sell the issue publicly instead of to the Reconstruction Finance Corporation as was intended in the original application.

BALTIMORE & OHIO.—Equipment Trust Issue.—This road has awarded an issue of \$4,750,000 of $2\frac{1}{2}$ per cent equipment trust certificates, Series J, dated March 1, 1940, and maturing serially to 1950, to a banking group headed by Harriman Ripley & Co., Inc., New York. The successful bid was 103.0391 and the bonds were reoffered to yield 0.35 to 2.25, according to maturity.

BOSTON TERMINAL.—Ratification of Trustee.—Division 4 of the Interstate Commerce Commission has ratified the appointment of S. Lewis Barbour as trustee of this company, but has refused to ratify the appointments of Henry R. Mayo and John H. Moran as co-trustees. Division 4 took the position that a property of this size did not require three trustees, holding that one was sufficient to look after its interests.

CENTRAL OF GEORGIA.—Abandonment.—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a branch line extending from McCombs, Ala., to Overton, 7.3 miles.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Abandonment.—This company would be authorized to abandon a portion of a branch line extending from Sauk City, Wisc., to the end of the line in Prairie du Sac, one mile, if the Interstate Commerce Commission adopts a proposed report of its Examiner A. G. Nye.

CHICAGO, SPRINGFIELD & St. LOUIS.—Abandonment.—This company has been authorized (1) to abandon its entire line extending southwest from Springfield, Ill., to Lock Haven, 78.8 miles, and (2) to abandon operation, under trackage rights, over a line of the Baltimore & Ohio extending from Cox Street to Third Street in Springfield, Ill., 0.4 mile, and over a line of the Illinois Terminal from a point about 0.7 mile north of Lock Haven, Ill., to Alton, 7.5 miles.

The labor organizations involved in the case asked the commission to attach to the certificate granting the abandonment a condition requiring that any other railroad taking over any part of the property within one year after operation has ceased shall contribute a definite amount to the benefit of the unemployed C. S. & St. L. workers in the ratio borne by the revenue now produced on the property taken over to the whole revenue of the entire property.

Division 4 said that it thought that it was obviously improper for such a condition to be imposed upon an unknown purchaser not a party to the proceeding, and that its

only effect would be to discourage any purchase of the property for the continued operation, so that there would be no benefit to the employees. The employees relied on a recent decision of the Supreme Court, United States v. Lowden, but the commission decided that different issues were involved in the instant case. In that case the Court upheld the contention of the commission that it had authority to impose labor conditions before granting authority to the Chicago, Rock Island & Pacific to consummate a lease of a subsidiary in Texas.

Commissioner Porter wrote a short concurring opinion in which he said that "While I agree that this line must be abandoned, I have never been able to accept the doctrine broadly announced in the report that we have no power in abandonment proceedings to attach conditions for the protection of the employees, particularly in view of the recent decision of the Supreme Court in U. S. v. Lowden, even though the statutory language there construed differs from that contained in section 1 (20)."

EAST BROAD TOP RAILROAD & COAL.—Abandonment.—This company has been authorized to abandon its Rock Ridge branch, extending from Rock Ridge, Pa., to Evanston, 4.9 miles, and its so-called Stanton siding, extending from Neelyton, Pa., to Stanton Quarry, 1.5 miles.

ELGIN, JOLIET & EASTERN.—Bonds.—This company has asked the Interstate Commerce Commission for authority to issue \$20,000,000 of first mortgage $3\frac{1}{4}$ per cent bonds, dated March 1, 1940 and maturing March 1, 1970. The bonds will be sold for cash and the proceeds used to pay at or prior to maturity \$10,000,000 of the company's five per cent first mortgage bonds, maturing May 1, 1941 and to redeem and pay prior to maturity \$9,000,000 of $4\frac{1}{2}$ per cent bonds of the Chicago, Lake Shore & Eastern, maturing June 1, 1969, together with \$900,000 of premium on the bonds.

ELGIN, JOLIET & EASTERN.—New Bond Issue.—An issue of \$17,700,000 of first mortgage $3\frac{1}{4}$ per cent bonds, Series A, of this road was publicly offered on March 7 by Morgan Stanley & Co., Inc., New York, and 33 underwriting associates, subject to approval by the Interstate Commerce Commission. The bonds were priced at $10\frac{1}{2}$ to yield 3.17 per cent to maturity at March 1, 1970. Proceeds of the issue, together with other funds available to the company, are to be used to refund \$10,000,000 first 5's, due May 1, 1941, and redeem \$9,000,000 of first $4\frac{1}{2}$'s of the Chicago, Lake Shore & Eastern (leased line), due June 1, 1940. The remainder of the total bond issue of \$20,000,000, or \$2,300,000, is to be placed with the United States Steel Corporation, which controls the Elgin, Joliet & Eastern, at an underwriters' price of $99\frac{1}{2}$.

ERIE.—Abandonment.—This company has asked the Interstate Commerce Commission for authority to abandon the operation of the Northern of New Jersey, extending from Croxton, N. J., to Sparkill, N. Y., 20.7 miles, and a subsidiary, the Nyack & Southern, extending from

Sparkill, N. Y., to Nyack, 4.3 miles. The lease to operate these lines has been disaffirmed by the trustees of the Erie.

FORT DODGE, DES MOINES & SOUTHERN.—Reorganization.—Division 4 of the Interstate Commerce Commission has ordered that a public hearing be held on a plan of reorganization under section 77 of the Bankruptcy Act for this company on April 30, 1940 in Washington, D. C. The hearing will be held before Examiner R. T. Boyden.

ILLINOIS CENTRAL.—Dismissal of R.F.C. Loan Application.—Division 4 of the Interstate Commerce Commission, at this company's own request, has dismissed its application for approval of a maintenance loan from the Reconstruction Finance Corporation for \$5,000,000.

LOUISIANA & ARKANSAS.—Abandonment.—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a line extending from Farmersville, Tex., to the end of the line at McKinney, 16.1 miles.

MINNEAPOLIS & St. LOUIS.—Abandonment.—This company would be authorized to abandon a line extending westerly from Conde, S. Dak., to Akaska, 102.8 miles, if the Interstate Commerce Commission adopts a recommended report of its Examiner J. S. Prichard.

MISSOURI PACIFIC.—Abandonment.—This company has asked the Interstate Commerce Commission for authority to abandon a branch line extending from Joplin, Mo., to the end of the line, 5,860 ft.

NORTHERN PACIFIC.—Annual Meeting.—For the first time in the history of the Northern Pacific, the annual meeting of stockholders will be held at St. Paul, Minn., instead of New York. The date is April 9.

READING.—Abandonment.—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon its Boston Run Colliery branch extending eastward from a connection with its Mahanoy and Shamokin branch at a point near Gilberton Station, Pa., to the eastern terminus of the line, 2,740 ft.

READING.—Abandonment by the Mill Creek & Mine Hill Navigation.—The Mill Creek & Mine Hill Navigation and the Reading, respectively, have been authorized by Division 4 of the Interstate Commerce Commission to abandon a 1,529 ft. segment and the operation thereof in East Norwegian Township, Schuylkill County, Pa.

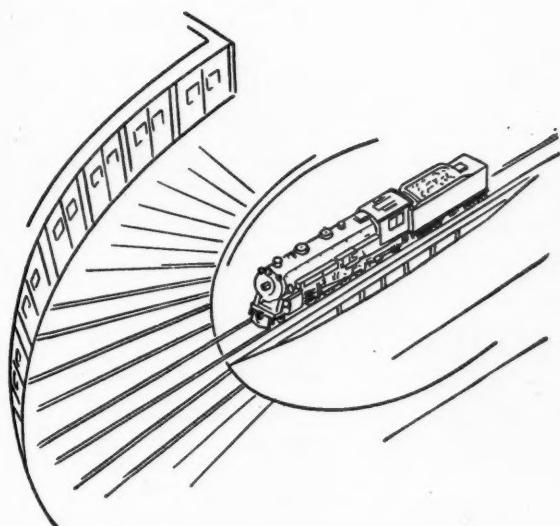
ST. LOUIS-SAN FRANCISCO.—Abandonment.—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon its Grassy Bayou branch, extending from Grassy Bayou, Mo., to Caruthersville, 6.8 miles.

SOUTHERN PACIFIC.—Abandonment.—The Interurban Electric has asked the Interstate Commerce Commission for authority to abandon operations over 40 miles of track of the California Toll Bridge Authority, the Southern Pacific and the Cen-

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***Locomotive Combustion
Specialists***

tral Pacific, between San Francisco, Calif., and surrounding Bay cities. At the same time the Southern Pacific has asked authority to abandon 19.6 miles of track in the same area, this track being a part of the 40 miles operated by the Interurban Electric.

SOUTHERN PACIFIC.—Abandonment.—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon its Milton branch extending from Peters, Calif., to Milton, 11.2 miles.

Average Prices of Stocks and Bonds

	Last Mar. 5	Last week	Last year
Average price of 20 representative railway stocks..	31.50	31.51	33.25
Average price of 20 representative railway bonds..	58.87	58.68	63.41

Dividends Declared

New York, Lackawanna & Western.—\$1.25, quarterly, payable April 1 to holders of record March 15.

Pittsburgh, Ft. Wayne & Chicago.—\$1.75, quarterly, payable April 1 to holders of record March 11; Preferred, \$1.75, quarterly, payable April 2 to holders of record March 11.

Reading Company.—Second Preferred, 50¢, quarterly, payable April 11 to holders of record March 21.

St. Joseph, South Bend & Southern.—75¢; 5 Per Cent Preferred, \$2.50, semi-annually, both payable March 21 to holders of record March 10. Wheeling & Lake Erie.—\$1.00, payable April 1 to holders of record March 21.

as a clerk and a stenographer at Breckenridge, Minn., and Grand Forks, N. D. In 1927, he was appointed a stenographer in the office of the vice-president in charge of traffic at St. Paul, and a year later he was promoted to secretary to the vice-president in charge of traffic, the position he held until his recent promotion.

Mr. Trembley was born at Horseheads, N. Y., on October 22, 1871, and entered railway service on December 17, 1889, as a car accountant for the Great Northern at St. Paul. A short time later he was transferred to the traffic department and advanced through several positions, becoming chief clerk to the vice-president in charge of traffic in 1900. In 1918, he was appointed assistant to the federal manager, and after the period of federal control, was appointed assistant to the vice-president in charge of traffic, the position he held until his retirement.

Henry Kittredge Norton, executive officer of the New York, Susquehanna & Western, who will continue in that ca-

1928 and as representative of the Carnegie Endowment for International Peace, countries of South America, in 1931. In 1934, Mr. Norton became treasurer of the National Broadcasting Company, and in 1935, assistant to the president of the Radio Corporation of America, in which capacity he served until he entered railroad service on July 20, 1937, with the New York, Susquehanna & Western, as executive officer for Walter Kidde, trustee of that road.

FINANCIAL, LEGAL AND ACCOUNTING

J. Gordon Henry, traveling claim adjustor on the Louisville & Nashville at Louisville, Ky., has been promoted to assistant freight claim agent, with the same headquarters.

Edward M. Hudgins, who has been engaged in the private practice of law at Chase City, Va., has been appointed an attorney on the Chesapeake & Ohio, with headquarters at Richmond, Va.

O. J. Wullstein has been appointed freight claim agent of the South-Central district of the Union Pacific, with headquarters at Salt Lake City, Utah, succeeding **W. E. Fitzpatrick**, who has retired.

L. A. Ehrhart, assistant real estate agent on the Pennsylvania at Pittsburgh, Pa., has been promoted to real estate agent, with headquarters at Chicago, succeeding **Paul C. White**, who has been transferred to Pittsburgh. Mr. White replaced **A. R. Meredith**, who retired on March 1.

Thomas Ginnelly, district freight claim agent for the lines West of Jasper, Alta., on the Western region of the Canadian National, with headquarters at Vancouver, B. C., has been promoted to freight claim agent of the Western region, with headquarters at Winnipeg, Man., succeeding **Hugh McDonald**, who has retired, and **William Carr**, assistant to the auditor of freight claims at Montreal, Que., has been appointed district freight claim agent at Vancouver, replacing Mr. Ginnelly.

Mr. Ginnelly was born at Limerick, Ireland on February 11, 1880, and entered railway service at Winnipeg on June 20, 1910 as a clerk in the freight claims department. He was promoted to chief clerk in 1912 and in 1920 was transferred to Vancouver.

Mr. McDonald was born at Curran, Ont. on February 22, 1875, and entered railway service as assistant agent at St. Jerome, Que. on January 1, 1903. He served at many points in Eastern Canada and was appointed freight claims agent at Quebec, Que., in 1911, later being transferred to Toronto, Ont. He was transferred to Winnipeg in 1930, where he remained until his retirement.

TRAFFIC

N. K. Lockwood, district manager of perishable freight service of the Denver & Rio Grande Western, with headquarters at San Francisco, Cal., has been promoted to western traffic manager, with the same

Railway Officers

EXECUTIVE

Francis P. McCarty, secretary to the vice-president in charge of traffic of the Great Northern, with headquarters at St. Paul, Minn., has been promoted to assistant to the vice-president in charge of traffic, with the same headquarters, succeeding **Clifford H. Trembley**, who retired on March 1.

Mr. McCarty was born in Wahpeton;



Francis P. McCarty

N. D., in 1901, and entered railway service during a summer vacation between school terms in the operating department of the Great Northern in 1918. He later worked



Photo by Kalden Kazanjian
Henry Kittredge Norton

pacity with the establishment of separate operating offices by the N. Y. S. & W. (hitherto operated as a subsidiary of the Erie), announcement of which was made in the *Railway Age* of March 2, was born on October 14, 1884, at Chicago. He graduated from Chicago Manual Training School in 1901; received a B. S. degree from Dartmouth College in 1905; an M. A. degree from Pomona college in 1913; and was a graduate student at the University of California from 1914 to 1915. Mr. Norton was admitted to the California bar in 1908 and practiced at Los Angeles from 1908 to 1918, becoming executive officer of the California Commission of Immigration and Housing in 1919, and serving in that capacity until 1920, when he traveled in Asia and Europe. On his return to the United States in 1923, he became assistant to general counsel of Armour & Co. From 1924 to 1934, Mr. Norton was variously engaged in economic, political and civic life, lecturing in modern history at Throop College of Technology, Pasadena, Cal., and in economics at Tsing Hua college, Peking, China; serving as chairman of the General Conference on the Caribbean in 1930; as press liaison officer for the American delegation to the 6th International Conference of American States, Havana, Cuba in

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units. Both new and RE-

manufactured units are sub-

jected to a rigid hydraulic

test before they are released

from our plant for shipment—

THEY ARE DEPENDABLE.

headquarters, a newly created position. **G. W. Rooney**, commercial agent at San Francisco, has been promoted to general agent at that point.

H. H. Wilson, westbound agent of the freight department of the Canadian National, has been promoted to general agent, with headquarters as before at New York.

J. F. Doggett, division passenger agent for the Baltimore & Ohio and the Alton at Toledo, Ohio, has been promoted to assistant general passenger agent at Chicago.

John McGregor, general agent of the Minneapolis, Northfield & Southern, with headquarters at New York, has been appointed general eastern agent at New York.

Ralph Philip Bird, general agent, freight department, of the Atchison, Topeka & Santa Fe, with headquarters in New York, died February 25 at his home in East Orange, N. J., at the age of 57.

F. R. Locke has been appointed acting industrial commissioner of the Grand Trunk Western, with headquarters at Detroit, Mich., succeeding **A. L. Shanley**, who has been incapacitated.

I. N. Phillips, freight traffic agent for the Nashville, Chattanooga & St. Louis at Chicago, has been promoted to assistant general northern agent, a newly created position, with the same headquarters.

Harry J. Cartier, district freight representative for the Baltimore & Ohio and the Alton at Little Rock, Ark., has been promoted to district freight agent at St. Louis, Mo., succeeding **William H. George**, who retired on February 16.

W. D. Chambers, traveling freight agent of the Seaboard Air Line, with headquarters at New Orleans, La., has been appointed Southwestern freight and passenger agent, with headquarters as before at New Orleans, succeeding **Thomas C. Harper**, deceased.

A. P. Lait, city passenger agent of the Canadian National, with headquarters at New York, has been appointed district passenger and freight agent at Washington, D. C., succeeding **G. L. Bryson**, who has been appointed general agent, passenger department, at New York, succeeding **C. E. Jenney**, who has retired after 19 years of service in that capacity.

W. T. Burns, whose promotion to freight traffic manager of the Union Pacific, with headquarters at Chicago, was announced in the *Railway Age* of February 24, was born at Holyoke, Mass., on June 9, 1895 and entered the service of the Union Pacific in April, 1922, on which road he held various positions in the shops and store department. On June 21, 1923, he transferred to a clerical position in the purchasing department, and on March 16, 1926, he was assigned to special clerical work for the general freight agent at Omaha, Neb. On July 16, 1928, he was promoted to traveling freight agent with headquarters at Omaha, and on May 24,

1930 he was appointed freight traffic agent, with headquarters at Chicago. Mr. Burns was advanced to general agent, freight traffic department, with headquarters at New York, on May 1, 1935, and in November, 1938, he was promoted to assistant freight traffic manager, with headquarters at Chicago, the position held until his recent promotion.

G. W. Sloan, assistant general freight agent on the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn., has been appointed senior assistant general freight agent—divisions, with the same headquarters, a change in title. **W. M. Whittemore**, assistant general agent at Nashville, has been promoted to general agent at that point, succeeding **W. H. Knox**, who retired on March 1. **W. R. Willson**, freight traffic agent at Atlanta, Ga., has been advanced to general agent at Birmingham, replacing **S. A. Moore**, general agent at Gadsden, Ala., who also retired on March 1. **U. R. Watson**, assistant general agent at Memphis, Tenn., has been promoted to general agent at that point, relieving **J. R. Chrisman**, who retired on the same date. **H. G. Edmondson**, freight traffic agent at Atlanta, has been advanced to general agent at Chattanooga, Tenn., succeeding **J. L. Darragh**, who retired on March 1. **A. T. Ridley**, commercial agent at Knoxville, Tenn., has been promoted to general agent at that point, a newly created position.

E. J. Hanson, whose promotion to freight traffic manager on the Union Pacific, with headquarters at Omaha, Neb., was announced in the *Railway Age* of Feb-

he was promoted to assistant freight traffic manager at Omaha, the position he held until his recent promotion.

C. J. Collins, whose promotion to passenger traffic manager of the Union Pacific, with headquarters at Omaha, Neb.,



C. J. Collins

was announced in the *Railway Age* of February 24, was born at Columbus, Ohio, on May 26, 1887, and entered railway service in 1907 as a ticket seller at the Union Station at that point. Two years later he became assistant ticket agent for the Pennsylvania at Columbus, and in 1910, he was advanced to city passenger agent. Mr. Collins entered Union Pacific service in 1913 as traveling agent at Cincinnati, Ohio, and from 1912 to 1920 he was representative and then manager of the Union Pacific-Chicago & North Western department of tours at Chicago. He was promoted to general passenger agent on the Union Pacific at Portland, Ore., in 1926, and was transferred to Omaha in 1927. On January 1, 1931, he was promoted to assistant passenger traffic manager, with headquarters at Omaha, the position he held until his recent promotion.

George H. Dumas, assistant general freight agent of the Chicago & North Western at Chicago, has been promoted to general freight agent, with the same headquarters, succeeding **S. G. Nethercot**, who retired on March 1.

Mr. Dumas was born at Escanaba, Mich. on March 28, 1895, and entered North Western service in June, 1913, as a clerk in the freight office at Escanaba. On January 1, 1917, he was transferred to Houghton, Mich., and on December 3, 1917, he was appointed agent at Iron River, Mich. Mr. Dumas was promoted to traveling agent at Indianapolis, Ind., in 1920, and was transferred in 1931 to Madison, Wis., and in 1932 to Chicago. In November, 1932, he was advanced to assistant general coal agent and in 1935 he was promoted to general coal agent. On June 1, 1938, the position of general coal agent was abolished and Mr. Dumas was appointed assistant general freight agent, with headquarters as before at Chicago.

Mr. Nethercot was born in London, England on February 25, 1870, and entered railway service on September 1, 1885, as an office boy on the North Western in Chicago. From 1887 to 1905, he served as a



E. J. Hanson

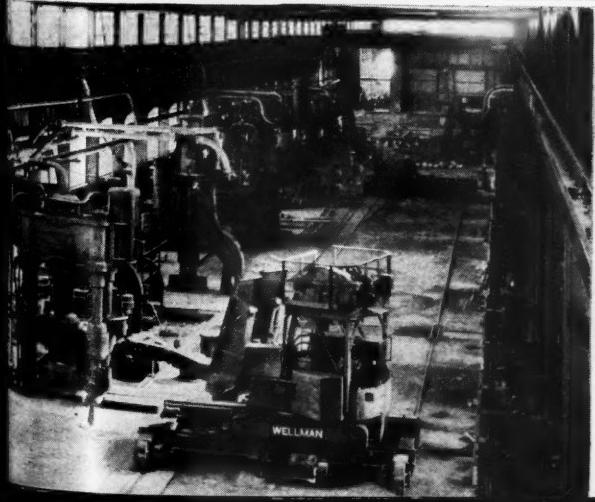
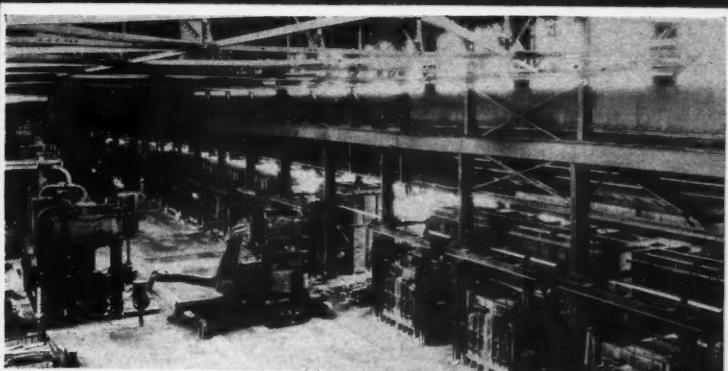
February 24, entered railway service on the Union Pacific in 1905 as a clerk in the freight office at Salt Lake City, Utah. In December, 1909, he was appointed traveling freight agent at that point, and in February, 1912, he was appointed contracting freight agent at Salt Lake City. In August, 1919, he was appointed reparations clerk, and in March, 1920, he was promoted to general agent in the freight department at Salt Lake City. Mr. Hanson was appointed general agent, refrigerator service, with headquarters at Omaha, in September, 1925, and in February, 1927, he was advanced to assistant to the freight traffic manager at Omaha. In July, 1929,

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stenographer and a clerk, and on the latter date he was promoted to chief clerk of the traffic bureau. Mr. Nethercot was promoted to assistant general freight agent in



George H. Dumas

1912 and to general freight agent in 1929, holding the latter position until his retirement.

LeRoy T. Wilcox, whose promotion to general freight traffic manager of the Union Pacific, with headquarters at Omaha, Neb., was announced in the *Railway Age* of February 24, was born in Chicago on May 30, 1876, and entered railway service on January 1, 1891, as a mail boy on the Chicago, Rock Island & Pacific. He subsequently held various positions in the general freight office of the Rock Island at Chicago, and in 1898, he was appointed chief clerk at Kansas City, Mo. In March, 1901, he went with the Union Pacific-Southern Pacific as a rate clerk at Kansas City, and was subsequently appointed assistant chief clerk and export and import agent. In November, 1906, Mr. Wilcox was transferred to the office of the traffic director as rate, tariff and statistical clerk, and 11 years later he became traffic assistant to the interstate commerce attorney in a



LeRoy T. Wilcox

newly created department, continuing in that capacity until July 1, 1918, when he was appointed a traffic assistant in the Central Western region of the United

States Railroad Administration. He returned to the Union Pacific on March 1, 1920, as assistant to the commerce counsel, and two months later he was advanced to assistant to the freight traffic manager, in charge of commerce work, a position he held until February 1, 1927, when he was promoted to assistant freight traffic manager, with headquarters at Omaha, the position he held until his recent promotion.

William S. Basinger, whose promotion to general passenger traffic manager of the Union Pacific, with headquarters at Omaha, Neb., was announced in the *Railway Age* of February 24, was born at Savannah, Ga., on August 28, 1870, and entered railway service as a clerk in the office of the general agent of the Union Pacific at Kansas City, Mo., in October, 1891. Six years later he entered the operating department of the Leavenworth, Kansas and Western (now part of the Union Pacific), at Leavenworth, Kan. In October, 1903, he was appointed superintendent of that road, and two years later became general agent. He was appointed trainmaster on the Union Pacific, with headquarters at Kansas City, Mo., in April, 1905, and in July, 1907, became assistant general passenger agent at Omaha. Fol-



William S. Basinger

lowing this service, he was for three years assistant to the director of traffic of the Harriman lines, with headquarters at New York and Chicago. He returned to the Union Pacific as general passenger agent, with headquarters at Omaha, in February, 1913, and on March 1, 1918, he was appointed assistant in the division of traffic of the United States Railroad Administration at Washington, D. C. When the railroads returned to private control, Mr. Basinger returned to the Union Pacific as assistant passenger traffic manager at Omaha, and on September 1, 1920, he was promoted to passenger traffic manager, with the same headquarters, the position he held until his recent promotion.

ENGINEERING AND SIGNALING

A. W. Van Riper, instrumentman on the Grand Trunk Western at Detroit, Mich., has been promoted to acting assistant engineer, with the same headquarters, and with jurisdiction on the Detroit division including the Detroit terminal, suc-

ceeding **R. A. Gravelle**, who has been assigned to other duties.

F. S. Wilkins of the engineering department of the Canadian National at Halifax, N. S., has been appointed division engineer, with headquarters at Charlottetown, P. E. I., succeeding **Alexander Scott**, who has been appointed division engineer at Halifax. Mr. Scott succeeds **L. H. Robinson**, retired.

OPERATING

Robert A. Gleason, assistant engineer of the Chesapeake & Ohio with headquarters at Fort Wayne, Ind., has been appointed assistant trainmaster of the Fort Wayne and Chicago divisions.

MECHANICAL

John S. Morris has been appointed electrical engineer of the New York, Chicago & St. Louis, with headquarters in the office of the superintendent of motive power at Cleveland, Ohio.

PURCHASES AND STORES

L. L. Smith, storekeeper on the Chicago, Rock Island & Pacific at Peoria, Ill., has been promoted to division storekeeper at Des Moines, Iowa, succeeding **Finley E. Hartzler**, who has been transferred to Kansas City, Kan. Mr. Hartzler replaces **Peter H. Berney**, who retired on March 1.

OBITUARY

T. E. McDonnell, president and general manager of the Canadian Pacific Express Company, with headquarters at Toronto, Ont., died on March 2, at the age of 68.

George B. Scott, who retired on June 1, 1938, as trainmaster on the Missouri Pacific, with headquarters at Poplar Bluff, Mo., died at his home in that city on January 16, following a short illness.

William I. Lightfoot, general passenger agent on the Louisville & Nashville, with headquarters at Louisville, Ky., died at that point on March 3, after a brief illness.

Mr. Lightfoot was born at Fordyce, Ark., on May 26, 1876, and graduated from the University of Arkansas in 1896. He entered railway service on July 6, 1896, as a stenographer in the general passenger department at Nashville, Tenn., and in August, 1898, he was appointed assistant rate clerk. In May, 1900, he was promoted to chief rate clerk, and in January, 1907, he was further advanced to assistant general passenger agent. Mr. Lightfoot was promoted to general passenger agent on the N. C. & St. L., in January, 1917, and on August 15, 1930, he was appointed general passenger agent for the Louisville & Nashville, with headquarters at Louisville, the position he held until his death.

Clarence T. Mackenson, Jr., assistant general traffic manager of the Pennsylvania, died on March 1 at the age of 53. Mr. Mackenson was born on June 16, 1886, at

Harrisburg, Pa., and entered railway service with the Cumberland Valley as clerk in the office of the general freight agent in April, 1903. Later, he served in the positions of claim clerk and rate clerk and as chief clerk for the same railroad. He entered the service of the Pennsylvania in August, 1912, as chief clerk in the division freight agent's office and in July, 1914, was promoted to chief rate clerk in the general freight agent's office, in charge of local rates. He was appointed division freight agent of the Eastern Pennsylvania, Western Pennsylvania and Central Penn-

sylvania divisions at Altoona, Pa., in December, 1916. In November, 1917, Mr. Mackenson was furloughed for military service, returning to railroad service in March, 1919, as special representative for the United States Railroad Administration, later serving successively as division freight agent for the Pennsylvania at Uniontown, Pa., and Pittsburgh, Pa. In March, 1920, upon termination of federal control, he was appointed division freight agent of the Western Pennsylvania and Northern divisions. In August of the following year, he was appointed assistant general freight

agent and in July, 1924, he became general freight agent at Pittsburgh, Pa. He was promoted to freight agent at Philadelphia, in August, 1925, and two years later he became assistant general traffic manager. In July, 1929, he was appointed assistant general freight traffic manager, and in June, 1932, he returned to his former position of freight traffic manager at Philadelphia. When the traffic department of the Pennsylvania was reorganized in February, 1934, Mr. Mackenson was appointed assistant general traffic manager, the position he held at the time of his death.

NORFOLK AND WESTERN RAILWAY COMPANY

Summary of Forty-fourth Annual Report for 1939

The Forty-fourth Annual Report of the Norfolk and Western Railway Company covering operations for 1939 shows Gross Railway Operating Revenues increased \$15,952,186, or 20.67 per cent, over 1938 as a result of improved general business conditions evidenced by increased industrial production and requirements, chiefly attributable to anticipated demands from foreign countries because of war conditions. Operating Expenses increased \$4,747,669, or 10.24 per cent. Net Income increased \$9,987,551, or 49.9 per cent. Income Balance of \$29,087,518 was equal to \$20.68 per share upon the outstanding Common stock as compared with \$13.57 in 1938.

Operating Results

	1939	1938
Railway Operating Revenues	\$93,115,127.59	\$77,162,941.67
Railway Operating Expenses	51,118,387.68	46,370,718.81
Net Revenue from Operations	\$41,996,739.91	\$30,792,222.86
Federal, State and Local Taxes	\$13,459,336.15	\$11,485,030.06
Net Rental of Equipment and Joint Facilities—Credit	3,121,812.73	2,415,095.51
Net Railway Operating Income	\$31,659,216.49	\$21,722,288.31
Other Income—Net	1,136,348.96	1,042,269.32
Gross Income from all sources	\$32,795,565.45	\$22,764,557.63
Interest paid on Bonds and Miscellaneous Deductions	\$2,794,327.67	\$2,750,871.08
Net Income	\$30,001,237.78	\$20,013,686.55
Dividends on Adjustment Preferred Stock —\$4.00 per share	\$913,720.00	\$916,500.00
Income Balance	\$29,087,517.78	\$19,097,186.55

Profit and Loss Statement

Credit Balance, December 31, 1938	\$151,694,535.32
Add:	
Income Balance for the year	29,087,517.78
Miscellaneous Items	714,149.65
	<hr/>
Deduct:	
Appropriation of surplus for dividends upon Common Stock	\$21,097,245.00
Miscellaneous Items	782,035.81
	<hr/>
Credit Balance, December 31, 1939	\$159,616,921.94

Quarterly dividends of \$1.00, a total of \$4.00 per share, or \$913,720.00, were paid upon the Adjustment Preferred stock. Quarterly dividends of \$2.50 and an extra dividend of \$5.00, a total of \$15.00 per share, or \$21,097,245.00, were paid upon the Common stock, compared with \$10.00 per share upon the Common stock for 1938. The total of Common stock dividends paid during 1939 equals 4.11 per cent upon the Company's Railway Property Investment and 72.53 per cent of the Income Balance.

Financial

The capital stock held by the public was \$163,482,800 and represented 75.94 per cent of capitalization so held. On December

Railway Property Investment

The Total Railway Property Investment was \$513,195,652, an increase over 1938 of \$10,622,508, of which \$2,759,700 was expended for various additions and improvements to roadway, structures and shop machinery and \$7,316,229 for new rolling equipment.

Additions and Betterments

The more important additions and betterments consisted of laying 86.05 miles of track with 131-lb. rail, making a total of 2,555.35 miles of track laid with 130-lb. or heavier rail; replacing existing bridges with heavier structures; eliminating grade crossings; and installing automatic signals and centralized train control on an important heavy tonnage branch line.

New Equipment

During the year the Company built, in its shops at Roanoke, Va., 9 steam freight locomotives and purchased and placed in service 3,414 freight train cars, 6 work equipment cars and 22 automobiles and trucks.

Improved Equipment and Service

The equipment program was enlarged in order to enable the Company to meet transportation requirements in connection with improved business conditions. Expenditures were authorized for additional steam freight locomotives and freight train cars and for modernizing steam freight locomotives, improving passenger train cars, and rebuilding and extensive repairs to other rolling stock, also for new steel rail and for modernizing interlocking and signal installations. During the year new high records in operating efficiency were attained, resulting in improved service. Average speeds of freight and passenger trains were increased and new records in fuel efficiency established.

Taxes

Taxes were \$13,459,336, an increase over 1938 of \$1,974,306, or 17.19 per cent, due chiefly to Federal taxes upon increased earnings. Taxes required 14.45 per cent of Total Railway Operating Revenues and were equivalent to 44.86 per cent of Net Income and \$8.23 per share upon the capital stock.

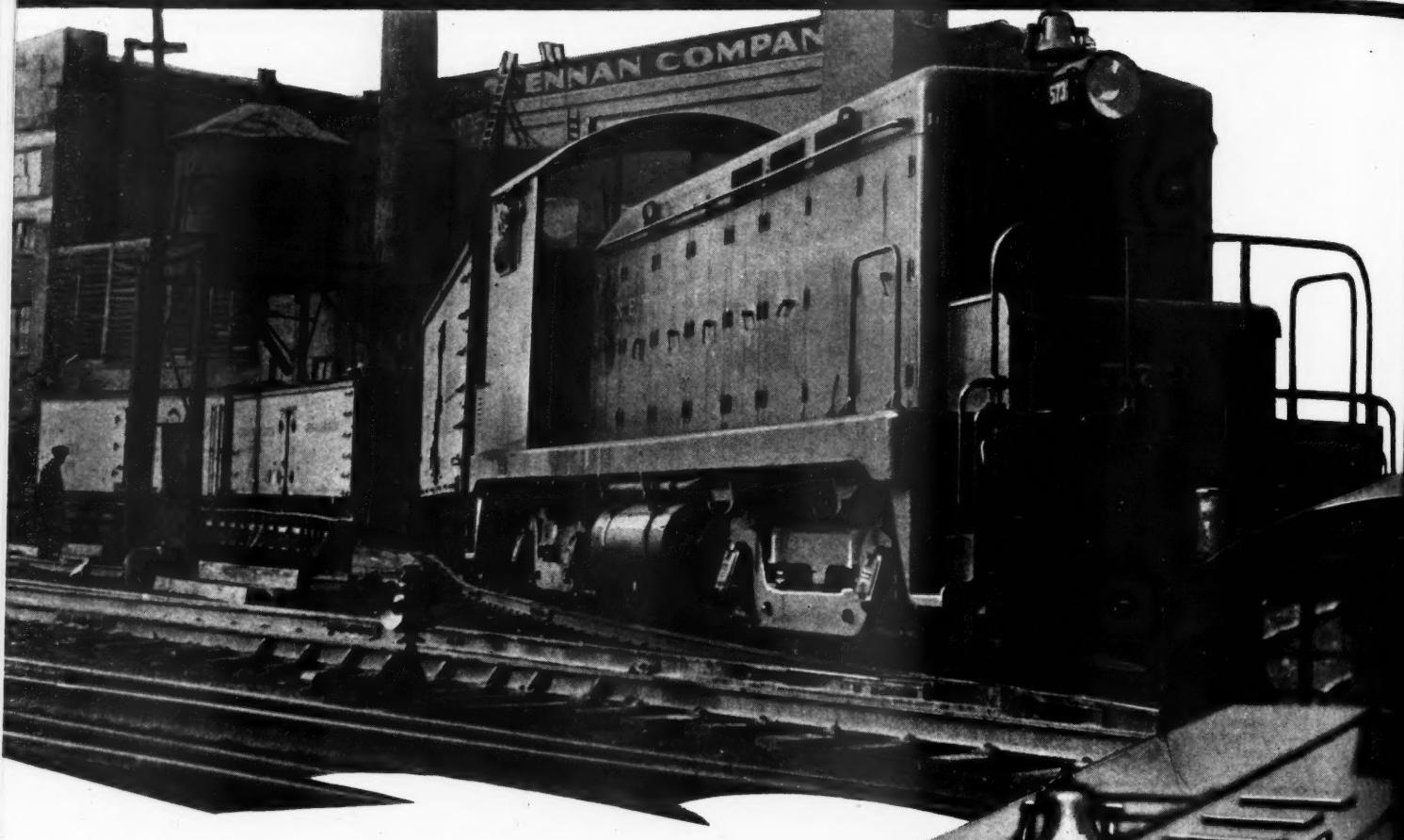
By order of the Board of Directors,

W. J. JENKS,
President.

[Advertisement]

Table of Freight Operating Statistics appears on second left-hand page

EMC "Clear-View" DIESELS



LOW OPERATING COSTS

Locomotive costs are reduced 50% to 75%.

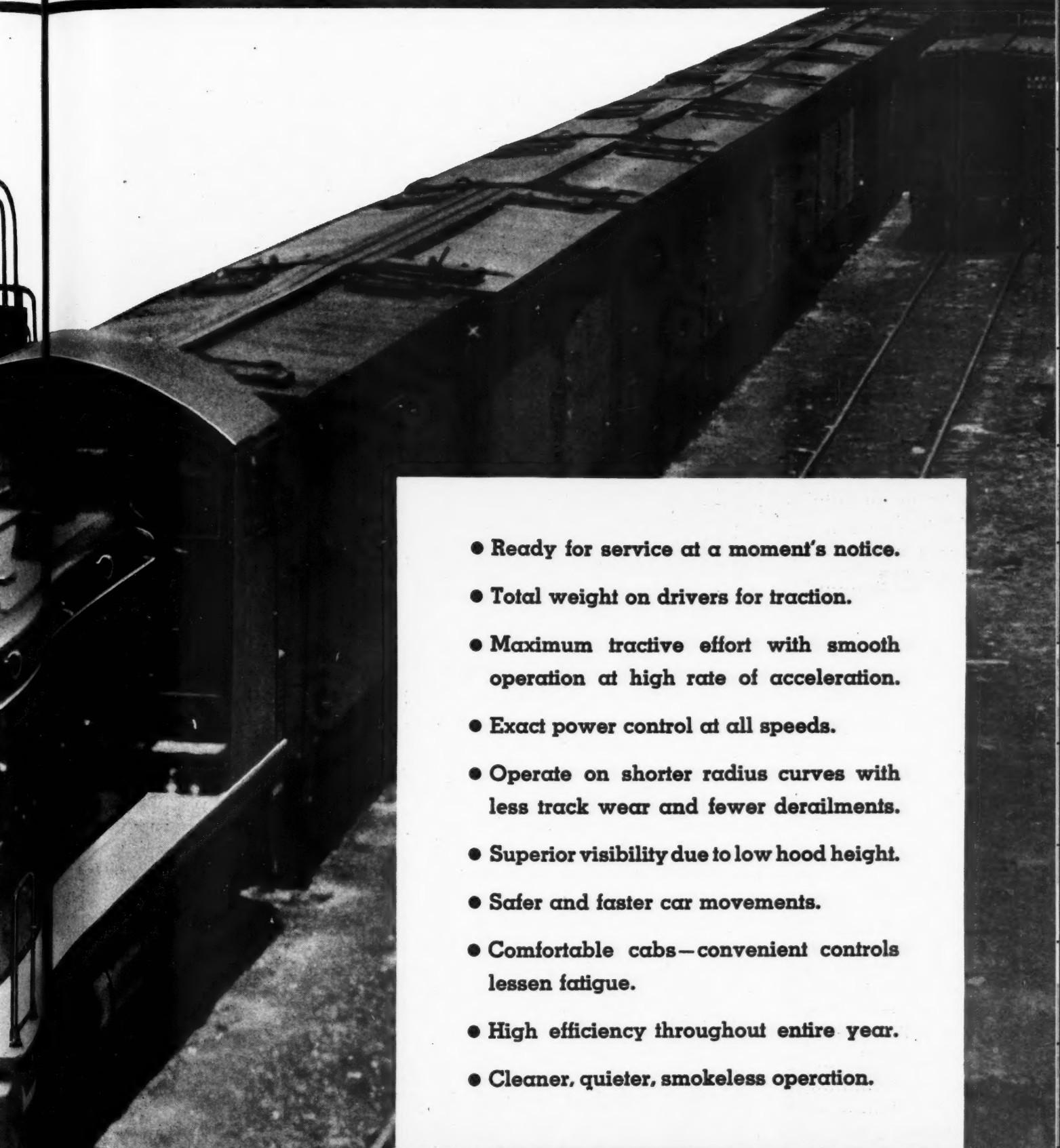
Water costs are eliminated.

94% availability with the result that fewer locomotives are required to handle 24-hour operation.

EMC Switchers are saving \$1,000.00 per month after all charges, and where maximum availability is utilized, EMC Diesels produce savings sufficient to liquidate their investment in five years.



S FOR BETTER ALL-ROUND SWITCHING PERFORMANCE



- Ready for service at a moment's notice.
- Total weight on drivers for traction.
- Maximum tractive effort with smooth operation at high rate of acceleration.
- Exact power control at all speeds.
- Operate on shorter radius curves with less track wear and fewer derailments.
- Superior visibility due to low hood height.
- Safer and faster car movements.
- Comfortable cabs—convenient controls lessen fatigue.
- High efficiency throughout entire year.
- Cleaner, quieter, smokeless operation.

ELECTRO-MOTIVE CORPORATION
SUBSIDIARY OF GENERAL MOTORS LA GRANGE, ILLINOIS U. S. A.

Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of December.

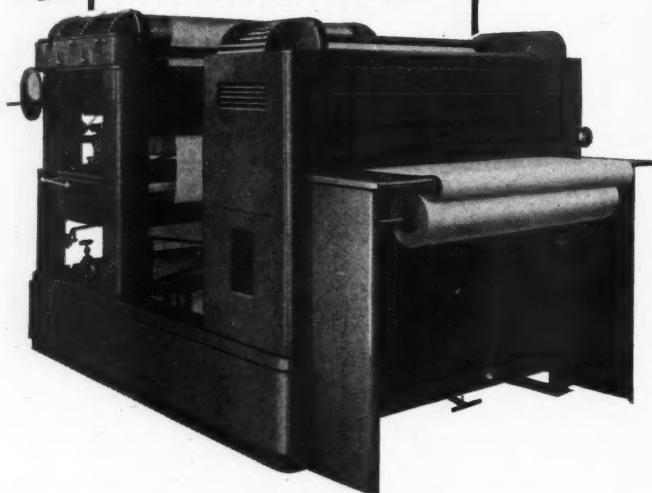
Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Number of road locomotives on line				
			Principal and helper	Light	Loaded (thous-ands)	Per cent loaded	Gross, excluding locomotives and tenders	Net, revenue and non-revenue	Serviceable	Unserviceable	Per cent un-servicable		
Not stored	Stored												
New England Region:													
Boston & Albany.....	1939	362	146,646	151,689	10,839	3,007	62.9	179,676	63,640	58	1	27	31.4
	1938	374	141,285	146,647	10,328	2,804	63.1	163,419	55,129	56	..	34	37.8
Boston & Maine.....	1939	1,894	284,364	318,568	23,840	9,427	67.1	541,931	199,964	113	..	58	33.9
	1938	1,937	268,124	297,486	24,235	8,513	65.5	498,209	184,274	140	..	99	41.4
N. Y., New H. & Hartf....	1939	1,844	351,332	435,563	29,669	11,858	64.9	662,435	242,892	194	14	40	20.2
	1938	1,856	334,834	420,565	29,582	10,966	62.9	629,311	228,631	174	4	90	36.1
Great Lakes Region:													
Delaware & Hudson.....	1939	846	249,117	338,784	34,926	8,364	62.1	541,067	256,656	129	40	70	29.3
	1938	830	213,899	291,272	33,389	7,374	61.9	477,604	227,258	130	89	42	16.1
Del., Lack. & Western.....	1939	983	374,883	427,120	59,181	13,219	66.6	792,445	316,374	141	4	62	30.0
	1938	983	349,381	392,003	54,853	11,752	64.8	709,136	273,958	122	4	83	39.7
Erie (incl. Chi. & Erie)....	1939	2,283	667,915	715,668	43,322	29,029	64.7	1,795,076	704,788	247	24	150	35.6
	1938	2,290	615,163	654,862	38,266	25,786	64.2	1,594,255	612,271	217	24	232	49.0
Grand Trunk Western.....	1939	1,023	251,847	255,970	1,780	7,249	60.7	452,940	155,840	72	..	31	30.1
	1938	1,027	248,618	251,443	1,785	6,437	60.2	404,779	138,669	69	..	46	40.0
Lehigh Valley.....	1939	1,265	332,580	372,380	59,797	13,634	65.6	860,614	363,525	124	..	97	43.9
	1938	1,248	317,254	353,879	56,106	12,279	62.7	790,046	325,220	120	1	119	49.6
New York Central.....	1939	10,606	2,833,187	3,007,188	184,132	92,634	57.2	6,504,079	2,661,223	922	95	371	26.7
	1938	10,651	2,644,217	2,783,954	172,527	83,297	57.3	5,755,521	2,314,947	913	105	454	30.8
New York, Chi. & St. L....	1939	1,672	547,916	558,108	7,113	19,443	62.4	1,208,624	449,063	172	3	23	11.6
	1938	1,672	491,469	498,333	6,353	16,732	61.5	1,048,309	389,188	156	8	34	17.2
Pere Marquette.....	1939	2,081	389,384	398,431	7,155	10,200	59.1	668,708	242,949	123	2	36	22.4
	1938	2,081	330,757	336,464	6,537	8,573	59.7	558,902	206,876	104	2	54	33.8
Pitts. & Lake Erie.....	1939	233	78,242	80,508	44	3,105	59.6	269,805	152,345	38	7	25	35.7
	1938	233	65,572	67,731	64	2,321	55.7	199,359	104,596	25	8	38	53.5
Wabash	1939	2,397	589,829	602,590	12,651	18,342	63.3	1,105,313	381,544	147	12	111	41.1
	1938	2,397	557,106	569,935	12,287	16,951	63.7	1,023,195	360,897	137	6	131	47.8
Central Eastern Region:													
Baltimore & Ohio.....	1939	6,262	1,537,027	1,904,330	212,055	47,158	60.0	3,339,016	1,492,066	727	113	365	30.3
	1938	6,285	1,315,548	1,607,859	174,336	38,530	60.0	2,709,394	1,194,379	611	159	475	38.2
Central of New Jersey.....	1939	679	170,490	193,894	37,275	5,321	59.9	382,509	184,591	74	11	69	44.8
	1938	681	151,305	172,235	35,700	4,731	58.9	340,123	161,439	69	4	77	51.3
Chicago & Eastern Ill....	1939	925	173,882	174,291	2,975	4,333	64.7	276,991	117,962	60	..	33	35.5
	1938	927	181,941	182,183	3,081	4,317	62.1	285,316	119,967	54	..	40	42.6
Elgin, Joliet & Eastern....	1939	390	113,363	115,110	1,712	2,834	57.6	228,934	113,441	63	..	14	18.2
	1938	390	96,153	97,392	1,089	2,228	57.0	178,060	85,743	54	1	26	32.1
Long Island.....	1939	375	25,385	26,470	17,200	246	50.3	19,332	7,377	39	..	9	18.8
	1938	379	28,807	29,794	16,740	265	50.2	21,034	8,169	37	6	5	10.4
Pennsylvania System.....	1939	9,995	3,036,683	3,658,127	434,869	112,688	59.9	7,884,098	3,446,190	1,312	176	773	34.2
	1938	9,995	2,572,170	3,089,102	351,368	92,162	59.2	6,430,857	2,753,788	1,192	96	1,049	44.9
Reading	1939	1,443	429,074	477,716	60,542	12,647	59.3	950,099	461,094	217	7	137	38.0
	1938	1,442	396,882	441,684	55,234	11,072	58.5	849,430	410,510	173	10	163	47.1
Pocahontas Region:													
Chesapeake & Ohio.....	1939	3,045	792,871	834,497	36,198	33,907	56.6	2,797,442	1,505,641	403	65	63	11.9
	1938	3,057	769,972	807,435	34,851	31,276	54.9	2,657,157	1,422,507	373	47	115	21.5
Norfolk & Western.....	1939	2,169	654,290	690,469	47,064	27,750	58.0	2,307,096	1,216,232	295	31	22	6.3
	1938	2,169	631,399	662,365	40,361	25,457	58.5	2,073,647	1,087,774	277	54	28	7.8
Southern Region:													
Atlantic Coast Line.....	1939	5,078	679,783	687,276	9,607	14,298	57.2	888,906	294,238	273	7	48	14.6
	1938	5,082	641,953	644,349	8,873	12,907	56.1	799,638	249,137	235	20	106	29.4
Central of Georgia.....	1939	1,838	252,022	253,611	3,530	5,213	68.5	301,692	115,050	101	..	20	16.5
	1938	1,838	243,912	245,258	3,319	4,920	67.4	287,068	108,113	90	1	33	26.6
Illinois Central (incl. Y. & M. V.)....	1939	6,537	1,307,163	1,319,518	26,418	37,135	60.5	2,480,805	1,030,014	618	30	161	19.9
	1938	6,537	1,309,344	1,316,332	24,855	34,961	59.1	2,374,288	976,345	593	11	209	25.7
Louisville & Nashville.....	1939	4,862	1,080,206	1,154,581	30,454	25,615	59.4	1,804,087	841,255	343	16	151	29.6
	1938	4,916	1,049,908	1,213,997	29,324	24,405	58.3	1,747,530	813,392	328	6	203	37.8
Seaboard Air Line.....	1939	4,301	612,221	631,942	4,477	15,042	63.3	915,389	341,831	242	4	55	18.3
	1938	4,305	554,082	575,515	3,597	13,507	61.8	826,066	297,242	233	10	62	20.3
Southern	1939	6,477	1,389,965	1,411,648	22,417	30,684	63.7	1,850,372	728,380	484	2	154	24.1
	1938	6,556	1,294,250	1,312,490	20,516	27,617	62.9	1,672,951	649,655	478	12	209	29.9
Northwestern Region:													
Chi. & North Western.....	1939	8,324	800,569	815,073	16,733	23,710	63.1	1,467,626	569,404	296	92	282	42.1
	1938	8,380	817,154	840,820	19,392	22,189	60.4	1,437,072	532,495	302	148	250	35.7
Chicago Great Western.....	1939	1,447	259,174	261,585	9,065	7,441	60.8	472,657	165,910	68	2	17	19.5
	1938	1,450	268,157	269,705	6,291	7,213	58.2	470,456	160,064	64	..	26	28.9
Chi., Milw., St. P. & Pac.	1939	10,882	1,162,676	1,204,029	42,508	33,153	60.7	2,166,389	868,693	412	93	149	22.8
	1938	10,934	1,207,840	1,241,128	39,809	31,278	59.2	2,076,751	819,846	413	124	149	21.7
Chi., St. P., Minneap. & Om.	1939	1,619	208,881	218,237	9,315	5,343	67.1	305,525	116,244	103	15	13	9.9
	1938	1,619	215,447	224,338	10,779	4,513	62.4	289,710	114,082	112	10	17	12.2
Great Northern.....	1939	7,974	720,592	714,127	24,902	23,011	62.9	1,510,548	605,682	325	75	135	25.2
	1938	7,976	729,311	724,459	27,849	22,092	62.0	1,457,010	570,140	330	73	143	26.2
Minneap., St. P. & S. St. M.	1939	4,261	374,415	378,465	3,544	8,136	62.4	500,742	197,149	118	..	20	14.5
	1938	4,266	361,444	366,241	3,233	7,244	63.8	433,601	169,				

1939, Compared with December, 1938, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road, and year	Number of freight cars on line			Gross ton-miles per hour, excluding locomotives and tenders			Net ton-miles per train-mile			Net ton-miles per loaded car-mile			Net ton-miles per car-day			Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders		Locomotive-miles per locomotive-day
	Home	Foreign	Total	Per cent un-serv-ice-able	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per road per day	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per road per day	Net ton-miles per car-day	Car-miles per car-day			
New England Region:																		
Boston & Albany.....	741	4,968	5,709	2.3	20,534	1,241	440	21.2	352	26.4	5,671	163	64.9					
1938	1,110	3,959	5,069	3.1	18,623	1,173	396	19.7	349	28.1	4,755	184	60.1					
Boston & Maine.....	5,200	7,717	12,917	4.1	26,713	1,917	707	21.2	505	35.5	3,406	107	69.3					
N. Y., New H. & Hartf....	7,248	7,235	14,483	11.8	24,883	1,862	689	21.6	391	27.5	3,069	111	47.4					
1939	6,318	10,911	17,229	2.4	28,599	1,914	702	20.5	441	33.2	4,249	114	66.2					
1938	8,500	10,047	18,547	9.4	27,359	1,916	696	20.8	381	29.0	3,974	113	58.7					
Great Lakes Region:																		
Delaware & Hudson.....	6,924	3,635	10,559	4.3	33,081	2,184	1,036	30.7	753	39.5	9,786	122	52.7					
1938	7,835	3,377	11,212	4.0	33,096	2,245	1,068	30.8	675	35.4	8,832	113	42.8					
Del., Lack. & Western....	11,015	7,672	18,687	6.2	37,619	2,138	854	23.9	550	34.5	10,382	138	79.4					
1938	12,800	5,627	18,427	18.0	36,932	2,057	795	23.3	465	30.8	8,990	142	72.6					
Erie (incl. Chi. & Erie)....	14,561	14,644	29,205	3.2	45,127	2,709	1,064	24.3	759	48.3	9,958	106	64.2					
1938	18,598	11,877	30,475	5.1	43,091	2,618	1,005	23.7	659	43.2	8,625	106	52.8					
Grand Trunk Western....	4,181	6,350	10,531	8.9	35,114	1,804	621	21.5	474	36.3	4,914	97	87.5					
1938	5,208	5,225	10,433	14.7	32,879	1,636	560	21.5	412	31.8	4,356	98	76.8					
Lehigh Valley.....	9,627	10,520	20,147	3.0	49,319	2,620	1,107	26.7	555	31.7	9,270	116	65.1					
1938	11,069	9,648	20,717	6.9	45,749	2,513	1,035	26.5	508	30.6	8,406	124	58.2					
New York Central.....	77,814	65,854	143,668	12.3	38,823	2,313	946	28.7	587	35.8	8,094	106	81.9					
1938	98,345	55,751	154,096	21.2	36,612	2,198	884	27.8	480	30.1	7,011	112	72.6					
New York, Chi. & St. L....	6,539	7,881	14,420	2.8	40,483	2,210	821	23.1	1,013	70.3	8,664	94	98.8					
1938	7,665	7,294	14,959	3.7	39,882	2,138	794	23.3	880	61.5	7,509	95	88.3					
Pere Marquette.....	8,169	6,761	14,930	3.2	30,223	1,727	627	23.8	517	36.7	3,766	100	89.5					
1938	10,511	6,158	16,669	3.4	28,457	1,692	626	24.1	401	27.8	3,207	100	74.9					
Pitts. & Lake Erie.....	8,147	9,665	17,812	31.0	44,603	3,455	1,951	49.1	269	9.2	21,092	91	42.0					
1938	8,961	8,574	17,535	36.3	42,399	3,044	1,597	45.1	186	7.4	14,481	105	32.8					
Wabash	12,207	10,002	22,209	10.7	39,702	1,891	653	20.8	562	42.7	5,135	122	77.0					
1938	15,413	8,415	23,828	9.2	38,480	1,857	655	21.3	478	35.2	4,857	126	72.1					
Central Eastern Region:																		
Baltimore & Ohio.....	55,467	22,652	78,119	4.8	29,441	2,204	985	31.6	616	32.4	7,686	148	60.5					
1938	60,995	18,042	79,037	24.6	28,289	2,090	921	31.0	487	26.2	6,130	154	49.9					
Central of New Jersey....	9,504	12,796	22,300	23.4	29,442	2,378	1,147	34.7	265	12.7	8,770	135	61.8					
1938	9,972	10,429	20,401	30.0	28,303	2,373	1,126	34.1	250	12.4	7,647	136	57.4					
Chicago & Eastern Ill....	2,914	3,105	6,019	4.3	28,763	1,601	682	27.2	639	36.3	4,114	129	64.3					
1938	3,270	3,110	6,380	4.4	28,940	1,580	664	27.8	595	34.5	4,175	133	63.1					
Elgin, Joliet & Eastern....	8,656	6,028	14,684	3.7	18,148	2,072	1,027	40.0	252	10.9	9,383	127	69.7					
1938	8,885	3,350	12,235	6.1	16,292	1,906	918	38.5	219	10.0	7,092	127	55.8					
Long Island.....	131	2,715	2,846	1.2	5,639	774	296	30.0	78	5.2	635	362	43.5					
1938	359	2,728	3,087	3.2	5,451	752	292	30.8	78	5.0	695	350	45.7					
Pennsylvania System.....	182,361	64,864	247,225	14.9	38,594	2,643	1,155	30.6	455	24.8	11,122	119	64.4					
1938	199,873	49,988	249,861	20.8	37,468	2,538	1,087	29.9	357	20.2	8,888	122	52.9					
Reading	23,470	15,899	39,369	19.7	28,252	2,223	1,079	36.5	375	17.3	10,308	134	52.8					
1938	25,931	11,014	36,945	22.6	27,099	2,148	1,038	37.1	360	16.6	9,183	139	50.8					
Pocahontas Region:																		
Chesapeake & Ohio.....	48,440	8,947	57,387	1.2	50,089	3,564	1,918	44.4	831	33.1	15,950	86	59.8					
1938	47,773	7,077	54,850	2.0	52,025	3,482	1,864	45.5	816	32.7	15,011	85	56.4					
Norfolk & Western.....	40,055	4,907	44,962	2.6	54,160	3,576	1,885	43.8	918	36.1	18,088	100	73.4					
1938	39,710	4,361	44,071	7.2	51,403	3,340	1,752	42.7	810	32.4	16,178	107	68.1					
Southern Region:																		
Atlantic Coast Line.....	14,769	9,177	23,946	17.7	23,693	1,311	434	20.6	403	34.2	1,869	114	74.2					
1938	18,458	7,942	26,400	22.3	22,057	1,248	389	19.3	316	29.2	1,581	114	60.6					
Central of Georgia....	5,029	2,518	7,547	2.3	23,870	1,208	461	22.1	505	33.4	2,019	124	75.1					
1938	5,435	2,249	7,684	2.3	23,211	1,181	445	22.0	460	31.1	1,897	137	70.3					
Illinois Central (incl. Y. & M. V.)....	28,428	15,015	43,443	3.7	30,890	1,911	793	27.7	752	44.8	5,083	138	58.9					
1938	28,856	14,668	43,524	4.0	29,117	1,826	751	27.9	729	44.1	4,818	143	56.2					
Louisville & Nashville....	38,980	8,392	47,372	14.4	26,231	1,672	780	32.8	576	29.5	5,581	141	79.5					
1938	40,584	8,135	48,719	19.0	25,795	1,667	776	33.3	536	27.6	5,337	137	73.0					
Seaboard Air Line.....	11,461	7,694	19,155	3.9	25,864	1,518	567	22.7	598	41.6	2,564	126	75.4					
1938	12,391	5,402	17,793	3.3	25,657	1,520	547	22.0	547	40.2	2,227	127	66.2					
Southern	20,992	19,121	40,113	6.1	23,512	1,340	528	23.7	585	38.7	3,627	147	75.0					
1938	22,265	17,531	39,796	10.5	22,895	1,302	506	23.5	522	35.2	3,197	150	64.4					
Central Western Region:																		
Alton	1,699	5,587	7,286	7.8	34,291	1,395	543	26.6	474	30.8	3,787	133	80.6					
1938</																		

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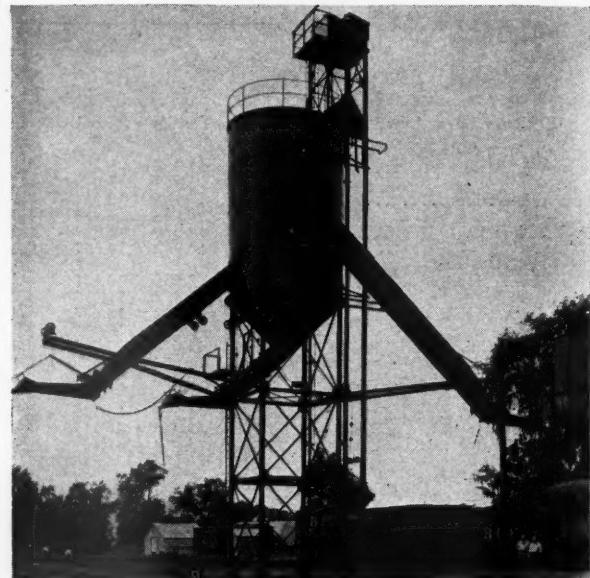
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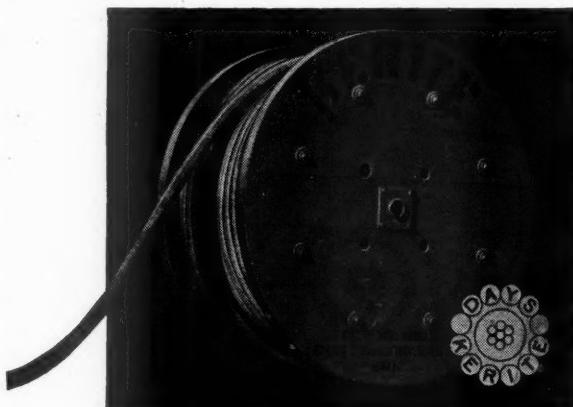


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